DOMESTIC ENGINEERING

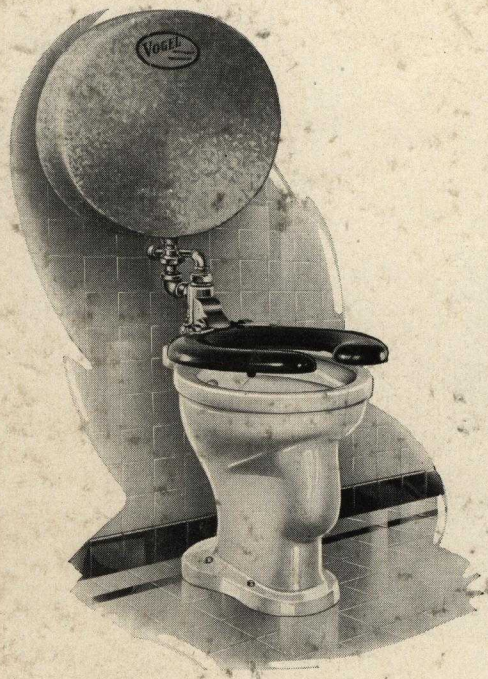
PLUMBING & HEATING CATALOG

1932-1933

Tenth Edition

ENGINEERING PUBLICATIONS, INC.
1900 Prairie Avenue Chicago, Illinois

The Installation of VOGEL Products has always meant satisfied customers for plumbers and profit in the plumber's pockets . . .



VOGEL Number Ten Seat-Action Closet with drum shaped tank

Frost-Proof and Non-Frost-proof Closets, Frost-Proof Hydrants, and Seat-Action Closets for Schools, Factories and Institutions . . . .

VOGEL Number Ten and Ten-A Closets are designed especially for use in schools, factories, institutions, and all public or semi-public places. They operate satisfactorily under all conditions, and withstand the hardest kind of use and abuse.

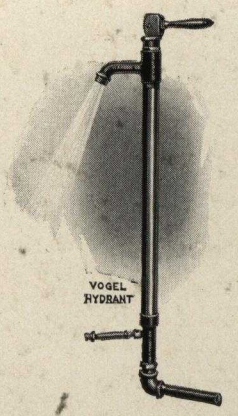
The VOGEL Number One Frost-Proof Closet needs no introduction. For more than 25 years plumbers have been making profits selling and installing VOGEL Number One Closets. More than 500,000 have been installed, and with the VOGEL patented frost-proof valve, can never freeze, no matter how cold the weather may be.



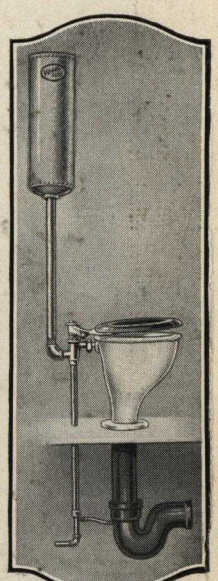
VOGEL Number Ten-A with tank concealed in the wall. Either syphon action or syphon jet bowl can be supplied. However, we recommend the syphon-action

VOGEL Frost-Proof Hydrants assure a supply of water all year 'round. They are easily installed and profitable for plumbers to handle.

So remember, you can always put money in your pocket and build up your list of satisfied customers pushing the VOGEL line.



VOGEL Frost-Proof Hydrant For garages, yards, playgrounds, etc.



VOGEL Number One Frost-Proof Closet. More than 500,000 have been installed

See Catalog Section Pages 220 to 223

. . . VOGEL PATENTED *Products* . . .

NEW VOGEL NUMBER FOUR

• *Frost-Proof* •

Another Frost-Proof Closet that will be as profitable for plumbers to sell and install as the Vogel Number One has been for 25 years

EVERY plumber knows the VOGEL Number One Frost-Proof Closet. More than 500,000 have been installed and plumbers have made millions of dollars in profits on this closet alone. And now the VOGEL Number Four opens up new avenues of profit for plumbers.

The principle of the Number Four is the same as the Number One, but many refinements have been added. The bowl is vitreous china; the tank is drum-shaped and low-down; and the valve has a top supply. The same tried and proven valve construction that has made the VOGEL Number One Frost-Proof the largest selling frost-proof closet in the world is incorporated in the new VOGEL Number Four. The drum-shaped tank will withstand any pressure that it will be called upon to hold. The top supply assures a full cleansing flush on water pressures as low as 20 pounds. The seat is well-seasoned hardwood.



• *VOGEL Number Four Frost-Proof Closet with vitreous china bowl and low-down drum-shaped tank* •

JOSEPH A. VOGEL COMPANY

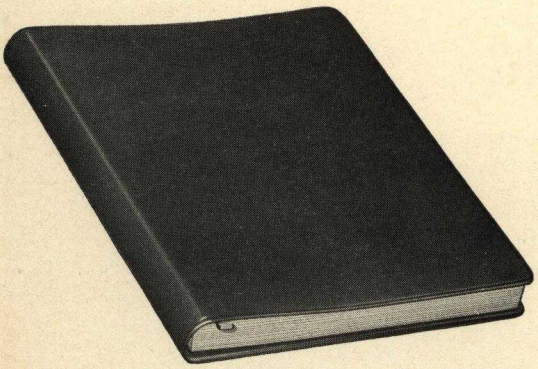
Wilmington, Delaware

St. Louis, Missouri

• • VOGEL PATENTED *Frost-Proof* ***Products*** • •

THE HANDY SPEEDLOK

Domestic Engineering Catalog Binder



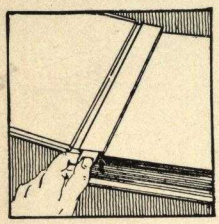
Especially designed for the standardized catalog page adopted by the plumbing and heating industries

The *Speedlok* is a quick operating catalog binder designed to fit reprints of catalog pages in "Domestic Engineering Plumbing and Heating Catalog" as well as all other catalog pages that conform to the standards adopted by the plumbing and heating industries.

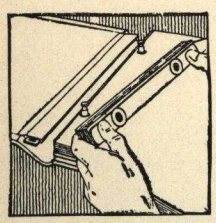
Easy and speedy operation are special features of this binder. A slight pull on the concealed bar under the top cover unlocks mechanism when sheets are inserted. Equipped with bar for removing sheets when changes are made.

Minimum capacity 1¼ inches. By simply unscrewing extension posts capacity can be extended to 2¼ inches. Works perfectly for all requirements—either a few sheets or filled to capacity.

Covers are bound in heavy black Levant Grained Fabricoid semi-flexible, very durable and attractive looking.

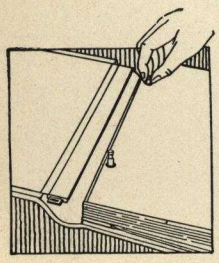


To unlock Binder—pull out slide bar in top wing. Top cover will immediately fall back.



To lock Binder—bring top wing back over the posts—be sure posts fit in the holes in the top wing—then push in slide bar.

Separate the sheets where desired and slip sheets off the posts. Take out sheets or put in new ones as desired. These three moves take but a few seconds. Each operation is a natural one.



To increase or decrease the capacity of the binder is a simple operation. The two posts are so constructed that they can be easily raised or lowered to meet the height requirements. Binder posts can be extended from 1¼ inches to 2¼ inches.

Plain White 16-lb. Bond Sheets Punched to Fit Speedlok Binder.

Quantity	100	500	1000
Price	$1.00	$3.00	$5.50

FOR JOBBERS' SALESMEN—

The loose-leaf system reduces to the minimum the bulk and weight of catalog material required by the salesman. Only matter actually required for selling purposes need be carried in the binder. It does away with the necessity of carrying entire catalogs, booklets and circulars of various sizes and shapes.

Salesmen using the loose-leaf system have a great advantage over men not using this equipment—to say nothing of the added convenience, time and labor-saving features.

With a modernly equipped loose-leaf binder the salesman can present his products in a more comprehensive manner than it is possible to accomplish by the old methods. Having all his material up to date in compact form and easily available, he can show latest specifications, answer questions or quote prices more readily.

When orders for binders are accompanied by requests for catalog reprints the binders will be equipped with the sheets desired and shipped complete.

Write for full details regarding loose sheets and binders.

Price of Binder—$3.00
Prices on quantities on application

DOMESTIC ENGINEERING

1900 Prairie Avenue (*Catalog Department*) Chicago, Illinois

DOMESTIC ENGINEERING

PLUMBING & HEATING CATALOG

1932 - 1933

TENTH EDITION

Price Postpaid $5.00

PUBLISHED BY

ENGINEERING PUBLICATIONS, INC.

1900 PRAIRIE AVENUE, CHICAGO

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This Copy of the 1932-1933

DOMESTIC ENGINEERING

PLUMBING AND HEATING CATALOG

is sent to you for use in your buying and specifying work. In it is complete reference information on products and sources of supply in the plumbing and heating industries.

The classified index gives you, at a glance, the name of the manufacturer of the article you are looking for and the page number on which it appears. This index is very comprehensive and makes it possible for you to locate the item wanted without any waste of time.

In the catalog section, you will find buying and specifying data on the products of a large number of manufacturers.

In the back of the book, you will find a section devoted to standard tables and rules. In this section, you can find many short cuts for saving time and eliminating errors.

We feel sure you will give this volume, which represents so much effort and expenditure, a hearty welcome and a prominent place on your buyer's desk for constant reference and consultation throughout the year.

We take pride in the reception this book has received from our field. It is seldom that a volume such as this will win, in a few short years, the recognition of the entire industry as this catalog has. While we know that the PLUMBING AND HEATING CATALOG is the standard reference book of the buyers in the plumbing and heating industry, at the same time, if you have any suggestions to offer that would make this CATALOG even more useful to you, we would be pleased to receive them.

DOMESTIC ENGINEERING

1900 Prairie Avenue (*Catalog Department*) **Chicago, Illinois**

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Lehnert & Co. 553
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McDonnell & Miller 354
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Alan O'Bright

THE CONOVER COMPANY CHICAGO, ILL.

General Offices and Display Room—140 S. Dearborn St.

District Offices and Display Rooms

101 Park Ave., New York, N. Y. 115 Chauncy St., Boston, Mass. 1700 Walnut St., Philadelphia, Pa.
Factory Representatives: Springfield, Mass. Providence, R. I. Albany, N. Y. Buffalo, N. Y.
Detroit, Mich. Milwaukee, Wis.

The Conover Electric Dishwasher Sink

Distribution Policy

Conover sink models are sold by the Conover Company exclusively to plumbing supply wholesalers; by the wholesalers to the master plumbers, and by the master plumbers to the consumer. The Conover Company does not sell Conover Electric Dishwasher Sinks direct to plumbing contractors or to builders. While Conover sink models are sold exclusively through the plumbing trade, Conover portable models, needing no plumbing installation, are sold exclusively through the electrical trade—electric light companies, department stores, and other leading electrical dealers.

Endorsement

All Conover Models have been approved by Good Housekeeping Institute and Delineator Home Institute.

Special Features

Interchangeability. The Conover Electric Dishwasher Sink requires no special rough-in for trap; connects with trap at regular height; is interchangeable with regular kitchen sink. Ideal for either new or old buildings.

Large Capacity. The ingenious design of the upper and lower dishracks and the large tank make possible longer periods between dishwashings. Holds 55 pieces of china and glassware plus silverware.

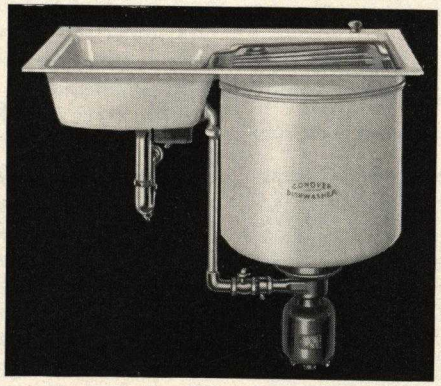
Easy to Load. Stemware and deep dishes and platters can be washed easily and thoroughly in this machine, as can the smaller and more regularly shaped dishes.

Self-Cleansing. The water action of the Conover washes the interior of the tank as it washes the dishes. No hand cleansing is required.

Rubber-plated Dishracks. Insure quiet operation and avoid chipping of dishes. Finest of china can be handled more safely than in soapy, slippery hands.

Sliding Drainboard Top. Gives use of drainboard space at all times, makes loading easier, and requires less human handling of dishes.

Easy, Thorough Operation. Loads easily. Admits water simply, measures it automatically, and discharges it electrically. Uses soap flakes effectively. Washes and rinses dishes thoroughly—dries them quickly.



Model SD-502R. Flat Rim Style. Especially adapted for built-in cabinets.

Specifications

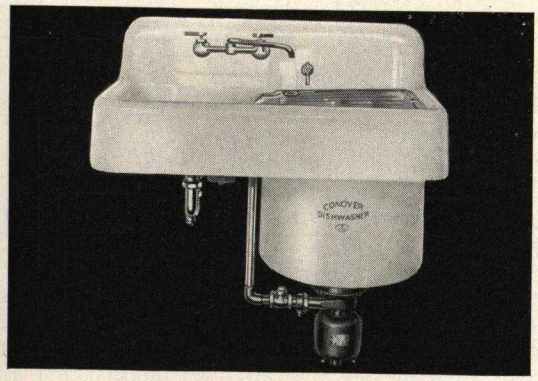
Model SD-501—Right or Left—Size 43x25 inches. Combination Conover Dishwasher and 3-8″ apron style sink. With a single stainless-steel, sliding drainboard, which is also the top for the dishwasher unit.

Model SD-502.—Right or Left—Size 43x25 inches. Combination Conover Electric Dishwasher and flat rim sink. With a single stainless-steel, sliding drainboard, which is also the top for the dishwasher unit.

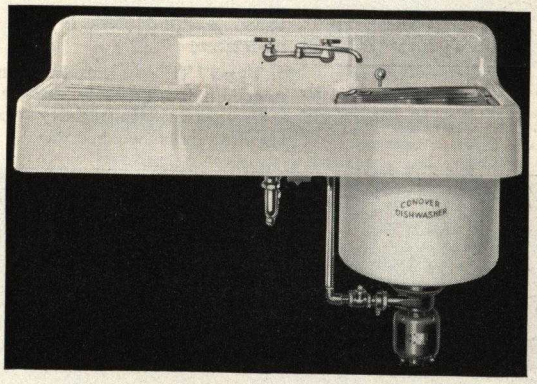
Model SD-503.—Right or Left—Size 62½x25½ inches. Combination Conover Electric Dishwasher and 3-8″ apron style sink. With double drainboards, one a stainless-steel sliding drainboard, which is also the top for the dishwasher unit, and the other a stationary enamel drainboard.

Switch and 60 cycle A. C. 110 volt single phase motor is standard equipment. Wall hangers are furnished for apron models. All models require a 9-inch swing spout mixing faucet. Casting can be furnished for 3-water faucet and double strainer.

Finish and Enamel. The best gray iron porcelain-enameled sinks are used. Regular enamel or acid-resisting enamel can be furnished. Finished in white, green, ivory or blue.



Model SD-501R. Single Drainboard Model. Sliding drainboard provides working space at all times.



Model SD-503R. Double Drainboard Model. Can be furnished with or without legs, as desired.

BRADLEY WASHFOUNTAIN CO. MILWAUKEE, WIS.

Representatives in all principal cities in the United States and Canada

2211 West Michigan Street

There's A Bradley Group-Washing Fixture For Every Group-Washing Requirement

Manufacturers of

Fixtures for Group Washing

Products: Bradley Washfountains, "5-In-A-Group" Showers, Combination Shower and Dressing Room Units, Drinking Fountains, Playground Showers and Footfountains.

Bradley Washfountains

Where Used—Bradley Washfountains are expressly designed to meet the modern need for group-washing facilities and are in widespread use throughout the world among industrial plants of all kinds, schools, institutions, railroads, airports, printing establishments, department stores, and office buildings—in fact, wherever it is desired to accomplish group washing efficiently and economically.



Bradley Foot-Controlled Washfountain

Rapidly growing in popularity because of valuable water saving accomplished by foot control. Type "D" with accommodations for 10 users is illustrated

Sizes and Types—Bradley Washfountains are available in both circular and semi-circular models and in 54-,36- and 32-inch diameter sizes. The 54-inch circular fixtures accommodates 10 users and the 36- and 32-inch units, 6 persons. The 54-inch semi-circular fountains serve 6 users and the 36- and 32-inch models, 3 users.

Type "A"—Circular. Both supply and vent connections from below. Particularly popular because all piping connections are concealed.

Type "B"—Circular. Both supply and vent connections from above.

Type "W"—Semi-circular (Illustrated below. Note attractive new design). For narrow or irregular washrooms where it is necessary to install fixtures against wall. Water supply and vent connections through wall or floor.

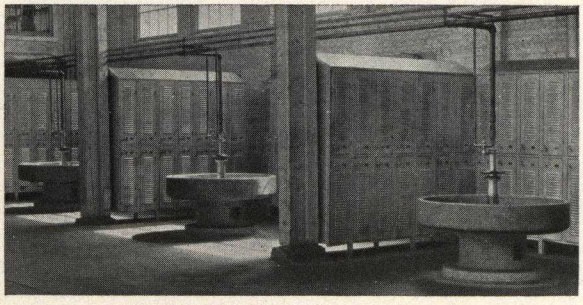


Type "W," Semi-circular Washfountain of the new Bradley design. Model illustrated, 54-inch size, 6-person capacity

Type "D"—Circular. (See center above). Similar to Type "A" with added feature of foot control of water flow, assuring maximum sanitation and water saving.

Type "F"—Semi-circular. Foot-controlled. Fittings and foot-control mechanism similar to Type "D." Supply and waste connections through wall or floor in 54-inch size. Supplies through wall only, waste through wall or floor in 32- and 36-inch sizes.

Type "O"—Circular. Vent connections from below and supplies from above. Especially desirable for remodeled washrooms.

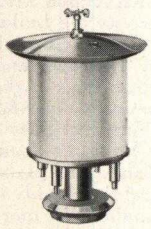


A Typical Bradley Washfountain Installation

Construction and Materials—Bradley Washfountains may be had in any of the following materials:

1. **Marmorite**—A precast marble composition, fully ground and polished, with all the durable and beautiful qualities of genuine marble.
2. **Granito**—A precast, non-porous stone composition, fully ground and polished, of a practical color and attractive appearance.
3. **Bradstone**—A new, low-priced, Bradley precast stone composition, very similar to Granito, with smooth, polished but unground surface.
4. **Enameled Iron**—All circular types of Bradley Washfountains in both 54-inch and 36-inch diameter sizes may now be had in enameled iron.
5. **Porcelain**—All types and sizes of Bradley Washfountains are available in porcelain.

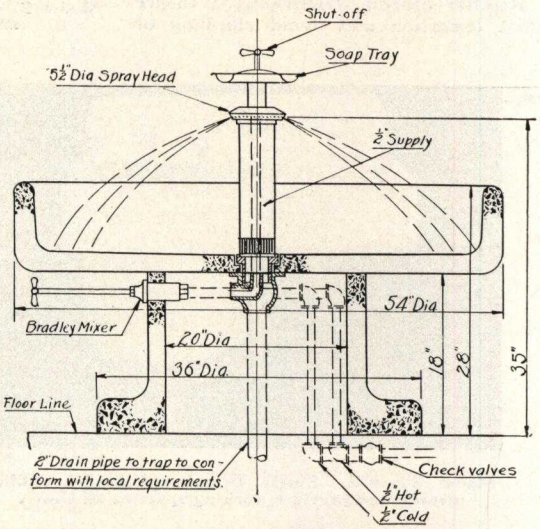
Durability—The modern Bradley Washfountain is effectively reinforced with steel, and is scientifically impregnated, thereby changing the chemical structure of the binder to an insoluble material, highly resistant to wear and to the action of ordinary cleaning agents.



Bradley Push-up Type Liquid Soap Dispenser

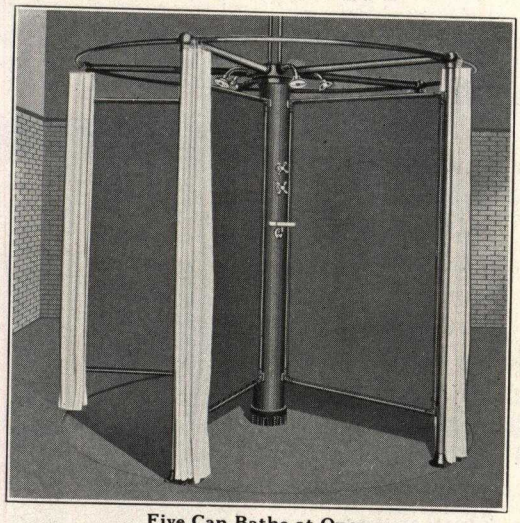
Equipment—Standard equipment for all Bradley Washfountains includes chromium plated cake soap tray and Bradley mixing valve which regulates temperature without affecting the volume of water. Special soap dispensers, thermostatic mixers, and sectional sprayheads can be supplied if desired.

Illustrating simplicity of design, ease of installation and location of drain at center of bowl. Check valves may be placed at any convenient and accessible location in the horizontal supply lines to each fountain.



Typical Roughing-in Drawing for a 54-in. Type "A" Washfountain

Bradley "5-In-A-Group" Showers

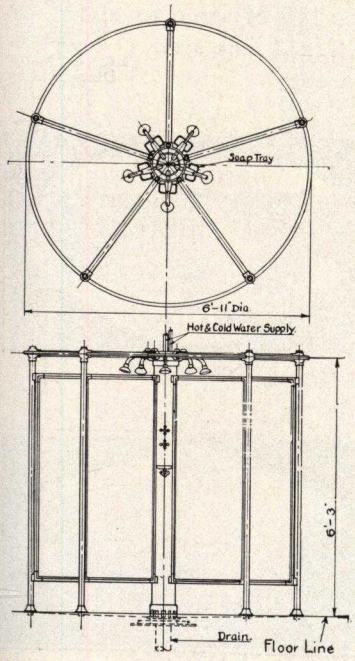


Five Can Bathe at Once
Bradley Type "O" Shower. Note deep steel partitions, central drain

The Bradley "5-In-A-Group" Shower, a circular, self-contained fixture accommodating 5 users at one time, is especially popular for use in industrial establishments, schools, institutions, gymnasiums, and clubhouses where it is necessary to provide bathing facilities for a group of people in the most efficient, sanitary and economical manner.

Construction and Materials—Vertical and horizontal frame members, as well as central standard, of wrought iron pipe. Standard partitions of heavy gauge, pickled cold rolled steel, baked enameled. Standard color artillery gray. Partitions of aluminum alloy, slate, Alberene stone or Carrara glass available on special order. Soap trays, control valves and shower heads, heavy brass, chromium plated. Shower regularly furnished with white duck curtains.

Sizes and Types—Bradley "5-In-A-Group" Showers are available in two sizes: Senior Model 84 inches in diameter; Junior Model 72 inches in diameter. Can be furnished with water supply connections from above or below. Type "A" with supply lines from below has operating valves suspended vertically from mixing chamber. Type "O" (illustrated) with supply lines from overhead has valves in the central standard.



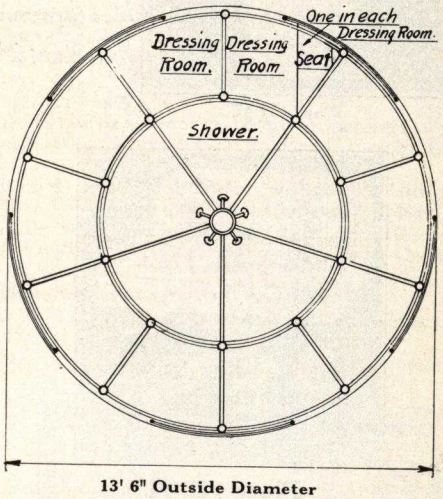
Features—The Bradley "5-In-A-Group" Shower is easily and quickly erected. It serves 5 users with the same 3 plumbing connections required for each ordinary single - person shower. There are no corners or dirt-collecting pockets. Water can be tempered to any desired degree **at any pressure.** Users are safeguarded against sudden, unexpected changes in temperature. Water consumption is reduced.

Bradley Shower and Dressing Room Combination

In this new self-contained, circular unit Bradley combines the advantages of the "5-In-A-Group" Shower with the privacy and convenience of individual dressing room compartments. It is easily and quickly erected, saves valuable floor space, reduces installation and maintenance expense, assures maximum sanitation and lessens janitor labor.

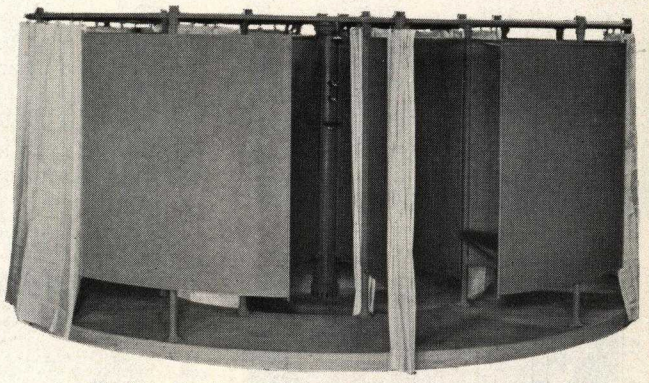
The Bradley "5-In-A-Group" Shower is the central unit of the new fixture. Around the shower are ten individual dressing rooms—2 dressing rooms for each shower compartment. Specifications of material and construction for the combination fixture are the same as for the Bradley Shower. Standard color artillery gray. Each dressing room is equipped with seat, clothes hooks, etc. Regularly furnished with white duck curtains.

Where Used—Like other Bradley fixtures, the new Shower and Dressing Room Combination is designed for the group-washing requirements of factories, schools and institutions. Because of the privacy and convenience made possible by its integral single-unit design, it is especially popular for girls and women.



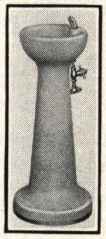
Floor Plan of Bradley Shower-Dressing Room Unit

13' 6" Outside Diameter



The New Bradley Shower and Dressing Room Unit

Bradley Drinking Fountains



Bradley Drinking Fountain Type "S"

Bradley Drinking Fountains are constructed of the same beautiful and lasting materials and according to identically the same process as Bradley Washfountains. They are suitable for either indoor or outdoor installations and are widely used in buildings of all kinds—industrial establishments, schools, institutions, office buildings and stores—as well as in parks, playgrounds and on the sidewalks of city streets. Bradley Drinking Fountains are available in 3 styles· Side-stream (illustrated); multiple head design with 3 bubblers; and center stream.

CAMDEN POTTERY COMPANY CAMDEN, N. J.

New York Office—103 Park Avenue

Manufacturers of Vitreous China Products

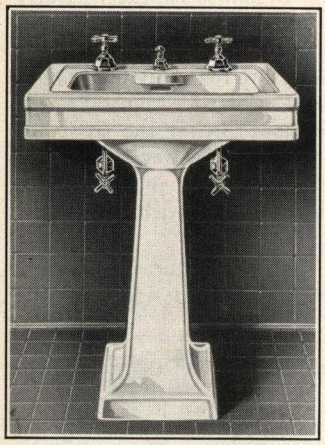


Plate 102-H

Camden Vitreous China Lavatories

Plate 102-H

"Cambar" Vitreous China Pedestal Lavatory. Rectangular basin with hooded overflow, anti-splash rim. Made for concealed integral supply nozzle, over-the-rim spout or compression faucets.

Size, 24x20 inches.

Plate 108-H

"Calvert" Vitreous China Square Leg Lavatory. Rectangular basin with hooded overflow and anti-splash rim. Made for over-the-rim spout, concealed integral supply nozzle or compression faucets.

Size, 22x19 inches.

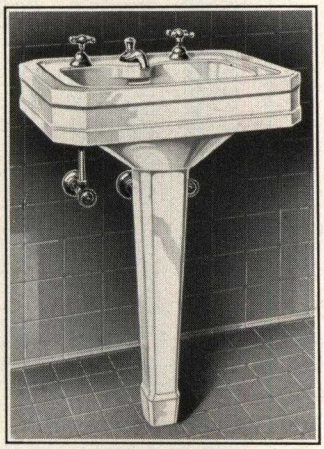


Plate 108-H

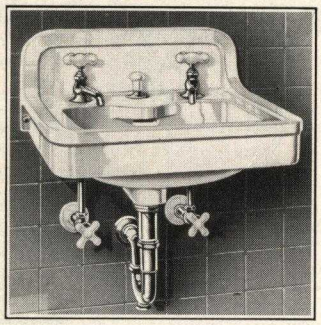


Plate 112-H

"Celtic" Vitreous China Straight Front Lavatory with Back. Rectangular basin, hooded overflow. Can also be furnished with china leg.

Size, 20x19 inches.

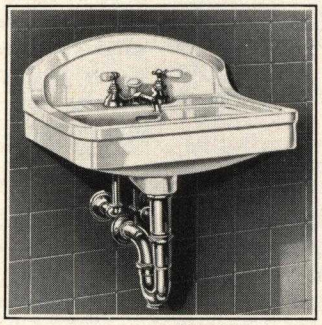


Plate 114-H

"Cornwall" Vitreous China Straight Front Lavatory with Back. Rectangular basin, open overflow and anti-splash rim, concealed wall hanger. Drilled for special fixture as shown. Can also be furnished for regular compression faucets and pop-up waste.

Size, 18½x15 inches.

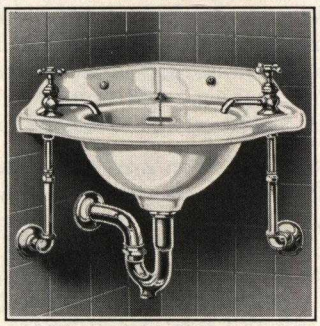


Plate 118-H

"Caldwell" Vitreous China Corner Lavatory with Back. Round basin, open overflow.

Size, 14x14 inches.

Plate 119-H same as above, except in 12x12-inch size.

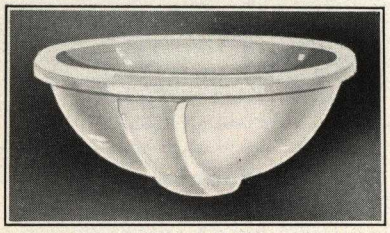


Plate 701-H

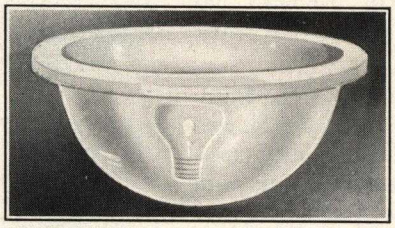


Plate 702-H

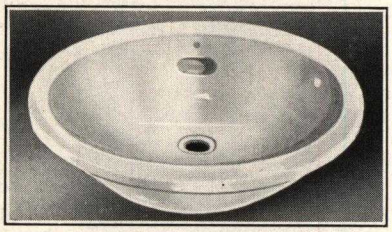


Plate 703-H

Camden Earthenware Basins

Plate 701-H

Oval Basins. Made in 14x17-inch, 15x19-inch and 16x21-inch sizes.

Plate 702-H

Round Basins. Made in all sizes from 12-inch to 16-inch.

Above can be furnished for Common Overflow, Patent Overflow, Rubber-Plug Overflow or No Overflow.

Plate 703-H

Oval Straight Back Basins. Made in 14x17-inch and 15x19-inch sizes. With or without Overflow.

Plate 704-H

Oval Recess Basins. Made in 14x17-inch and 15x19-inch sizes. No Overflow.

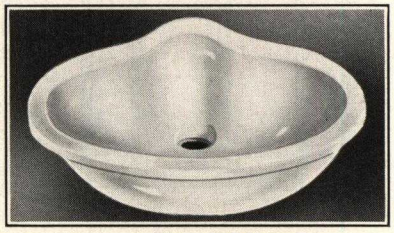


Plate 704-H

Camden Vitreous China Combinations, Bowls, Tanks, Urinals and Hoppers

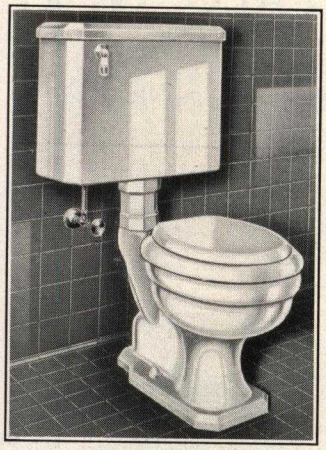


Plate 206-H



Plate 220-H

Plate 206-H "Princess"—Vitreous China Square Base Syphon Jet Closet with Flat Rim, Large Water Surface, Deep Water Seal and Hexagon China Bolt Caps. Vitreous China 20-inch Straight Front Tank. Guaranteed All-White Seat and Cover with Concealed White Hinge.

This combination can also be furnished with Straight Connection to rough-in at 11½ inches or with varied size Offset Connections to rough-in at 12 to 14½ inches. Approximate weight crated, Tank, 85 pounds; Bowl, 70 pounds; Seat, 10 pounds.

Plate 220-H "Croton"—Vitreous China Reverse Trap Closet with Square Base, Flat Rim, Large Water Surface, Deep Water Seal and Hexagon China Bolt Caps. Vitreous China 18-inch Straight Front Tank. Guaranteed White Seat and Cover with Heavy N. P. Hinge.

Plate 221-H—Same as above except for 14-inch roughing.

Approximate weight, crated, Tank, 70 pounds; Bowl, 55 pounds; Seat, 10 pounds.



Plate 230-H



Plate 305-H

Plate 230-H "Latona"—Vitreous China Syphon Action Washdown Closet, Square Base, Flat Rim, Large Water Surface, Deep Water Seal and Hexagon China Bolt Caps. Vitreous China 18-inch Straight Front Tank. Guaranteed Mahogany or Oak Finish Seat and Cover with Heavy N. P. Hinge.

Plate 231-H—Same as above except for 12-inch roughing.

Approximate weight, crated, Tank 70 pounds; Bowl, 55 pounds; Seat, 10 pounds.

Plate 305-H—**"Cabot"**—Vitreous China Syphon Jet Closet with Round Raised Rear Vent and China Vent Flange, Oval Base, Oval Rim, Large Water Surface, Deep Water Seal and Round China Bolt Caps, fitted with N. P. Flush Valve with China Oscillating Handle.

Plate 306-H—Same as above except with Extended Lip.

This Bowl can also be furnished in Juvenile Height (13 inches) with or without extended lip.

Approximate weight, crated, Bowl, 80 pounds; Valve, 8 pounds; Seat, 5 pounds.



Plate 720-H

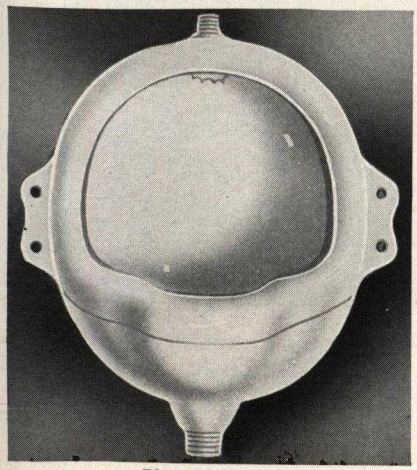


Plate 710-H



Plate 468-H

Plate 468-H "Coster"—Vitreous China No. 3 Front Outlet Washout Bowl. Can also furnish No. 3 Back Outlet Washout Bowls.

Plate 720-H—Vitreous China Tall Oval Flushing Rim Hopper with or without seat attachment. Can also furnish Tall Round Flushing Rim Hoppers with or without seat attachment.

Plate 722-H—Vitreous China Short Oval Flushing Rim Hopper with or without seat attachment. Can also furnish Short Round Flushing Rim Hoppers with or without seat attachment.

Plate 710-H—Vitreous China **"Bedfordshire"** Flat Back Lip Urinal. Furnished in No. 1, No. 2 and No. 3 sizes for putty joint connections. Nos. 1 and 2 can also be furnished for brass spud inlet and outlet.

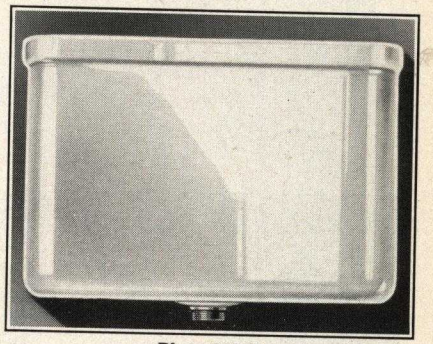


Plate 515-H

Vitreous China High Tanks With Top Supply

Plate 513-H 2-gallon capacity.
Plate 514-H 4-gallon capacity.
Plate 515-H 6-gallon capacity.
Plate 516-H 8-gallon capacity.

The 4, 6 and 8-gallon Tanks can be furnished for either Chain and Pull or Automatic Fittings. 2-gallon Tanks with Automatic Fittings only.



Plate 722-H

W. A. CASE & SON MFG. CO. BUFFALO, N. Y.

Executive Offices—33 Main Street

Distributors in Principal Cities | Founded 1853 | Plants—Norristown, Pa.—Robinson, Ill.

T/N One Piece Water Closet

(Patented and Patents Pending)



No. 55

ONE PIECE T N WATER CLOSET SILENT NON-OVERFLOW
Patented, Patents Pending

Furnished in wide variety of colors as well as white ware



No. 80

No. 55—White Seat and Cover.
No. 60—White Seat and Cover—Open Front.
No. 65—White Open Front Seat, Less Cover, with Check Hinge.

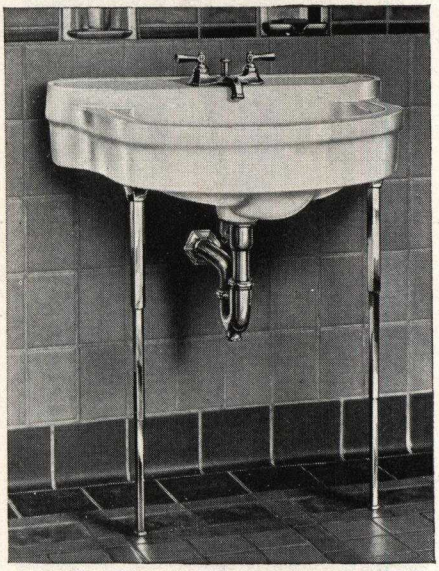
No. 80—Open Front Rubber Seat, Less Cover.
No. 85—Open Front Rubber Seat, with Cover.
No. 90—Closed Front Rubber Seat, with Cover.

RobsoN Lavatory



RobsoN Wall-hung Lavatory.
Size 20x18 inches.

Special Concealed Annealed Supplies with Stops Furnished if Ordered



RobsoN Lavatory with Legs.
Sizes 24x20; 27x22; 30x22½ inches.

Furnished with Plain or Art Fittings and Various Colors as well as White Ware

"ZECO" Vitreous China Sanitary Ware

In Colors or White Ware



No. 20-A

ZECO Wash Down Bowls

Twin Jets

Twin jets, with square base and pedestal. Bowl opening is extra large.

Furnished in colors or white ware.

No. 20-A—To rough in at 14 inches.

No. 30-A—To rough in at 12 inches.

No. 40-A—To rough in at 10 inches.

No. 50-A—Center outlet—16 inches.



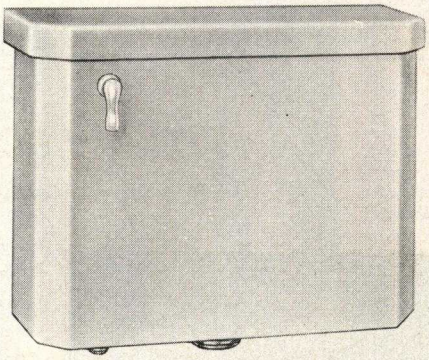
ZECO Reverse Trap Bowl With Jet

ZECO Reverse Trap Bowl with Jet, with square base.

Extra large bowl opening, which will give efficient performance.

No. 60-A—To rough in at 14 inches.

Furnished in colors or white ware.



No. 12-A

ZECO—No. 12-A—China Tank

Straight design, beveled corners.

Vitreous china tank furnished with white or black china handle or with chromium plated metal handle.

Heavy red metal "No-Trouble" trimmings.

Chromium plated 5x6-inch elbow.

Supply pipe and escutcheon.

Furnished in colors or white ware.



"Water Saver" Closet Combination

Tank rests on shelf at rear of bowl and is fastened to bowl by a simple patented connection entirely eliminating elbow.

Tank is not attached to wall.

Large bowl opening.

Thorough flushing action requires maximum of 3½ gallons of water.

Furnished in colors or white ware.

For Other Products of Our Line See Page 717.

THE D. A. EBINGER SANITARY MFG. CO.

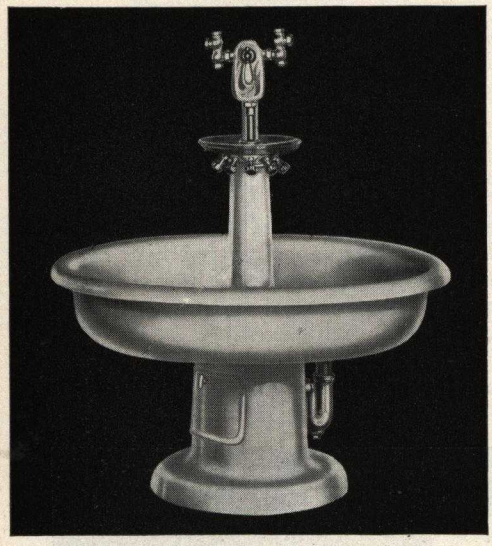
General Office and Factory—401 West Town Street, Columbus, Ohio

Eastern Office—New York, N. Y., 101 Park Avenue

Agents in All Principal Cities

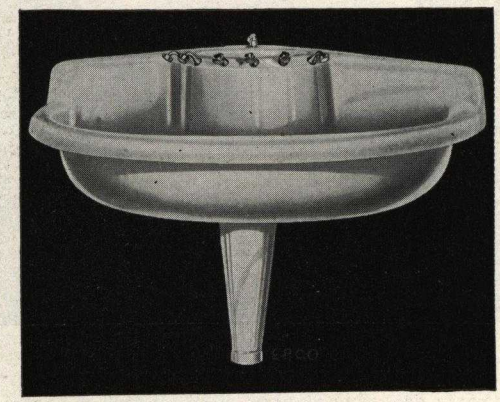
The "EBCO" Circular Wash Sink

For Wash Rooms in Factories, Shops, Schools, Etc.



Model D-241 (Overhead Supplies)

Designed for overhead supplies and vent. Made in three sizes: 36-inch for 6 persons; 48-inch for 8 and 54-inch for 10 persons. Finished in white, gray or colors—vitreous enamel or acid resisting finish. Receptor, column and pedestal are vitreous enameled in white or colors. Soap tray (and liquid soap container Model D-251) finished in black. Fittings are red brass, chrome plated. The 2-inch trap is galvanized. The porcelain finish is non-absorbent, impervious to moisture. The EBCO is easy and economical to install. Write for complete bulletin.



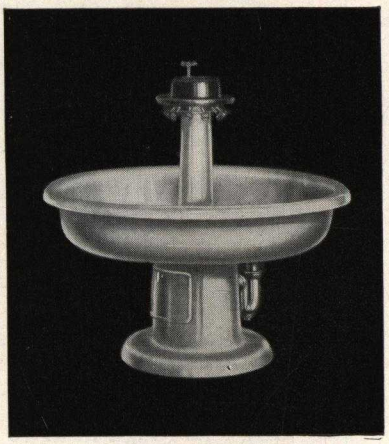
Model 271—EBCO Semi-Circular Wash Sink for narrow rooms, halls and other places where space is limited. Size 60 inches

Same high quality materials and construction as the circular sink. White or colors. Cake soap recess or liquid soap valves. Vitreous enameled pedestal leg. All fittings concealed, but easily accessible. Recess back eliminates cutting into wall for fittings and connections. Write for complete bulletin.

Conserve Floor Space. The EBCO Circular Sink requires considerably less space than a rectangular sink or individual basins. Being accessible from all sides it reduces washing time.

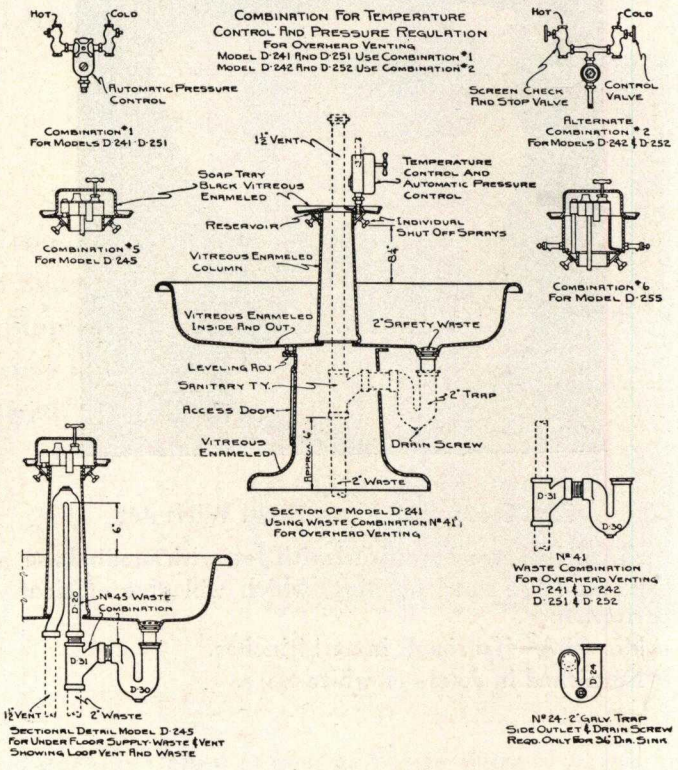
Individual Control Sprays. A valve integral with each spray controls the flow of water. Only actual users are thus supplied, which means a great saving in water. Total flow of water through each spray is only 1½ gallons per minute.

Automatic Pressure Regulation and Temperature Control. This feature insures uniform flow with one or ten users. Control of temperature is simple, dependable and effective. Removable strainers in supply lines catch and hold sediments. Check valves prevent circulation between hot and cold lines.



Model D-245—For water and vent connections from below. Same specifications of construction as D-241 with soap tray or liquid soap container

Ventilation Insures Sanitation. Direct rising vent in D-241 and D-251 is approved by all plumbing codes. It is an exclusive "EBCO" feature.



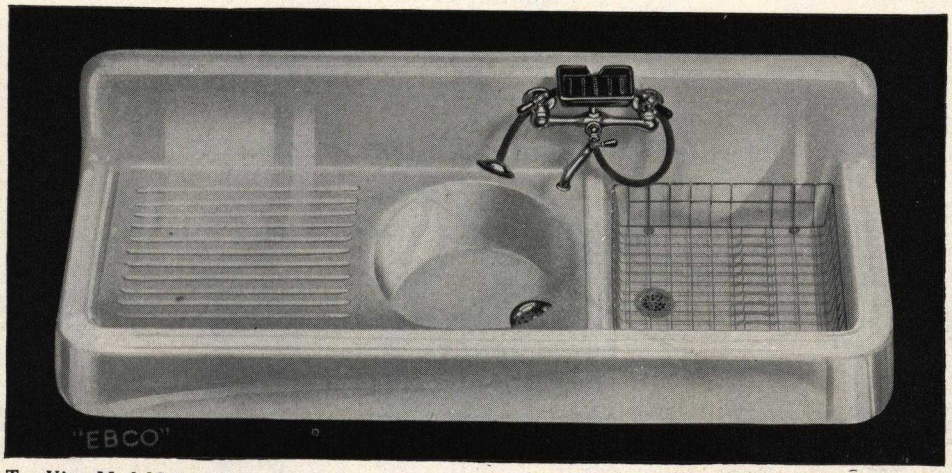
"The Pride of the Home"

EBCO Dishwashing Sink

"With Dishpan Built-in"

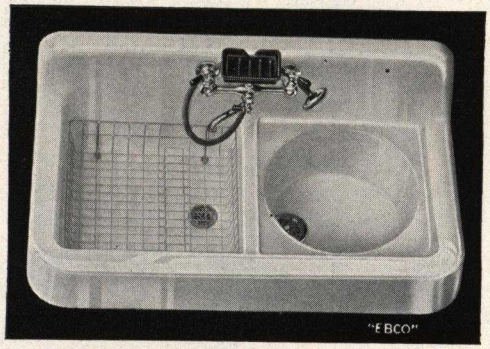
For Homes and Apartments

The EBCO features a built-in dishpan which is a permanent part of the sink. It is furnished in the two compartment and drainboard style as pictured above; in two compartment only, with, and without adjustable legs; also the Flat Rim type. Choice of white or colors.



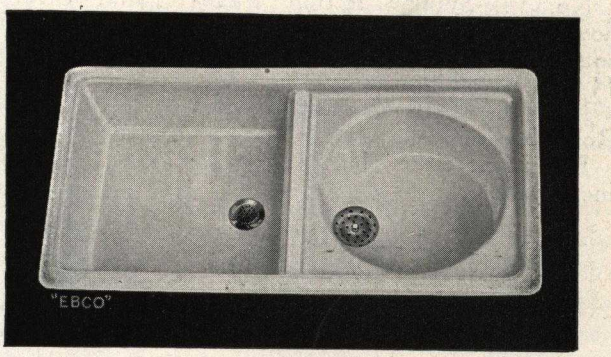
Top View Model L-165 Drain Board on Left. Without Legs. Length 60-In. Width 23-In. Back 8-In. Made in White or Colors

The dishpan in all models (excepting Model LR 131 which is elliptical in shape) is 15½ inch diameter by 8½ inches deep. The finish is high grade vitreous enamel or acid-resisting finish. Standard equipment includes removable strainer, waste combination and extension brackets. A wire drainbasket is provided for the rectangular draining compartment.



Top View Model R-152. 42 Inches

A two compartment model, 42-inch length, for small kitchen and kitchenettes. Furnished with or without pedestal leg. Right or left dishpan. Pop-up waste or standard lift plug combination. Note safety overflow partition on this and other EBCO models. The dividing wall between compartments is below rim level so that one can overflow into the other in case of stoppage.



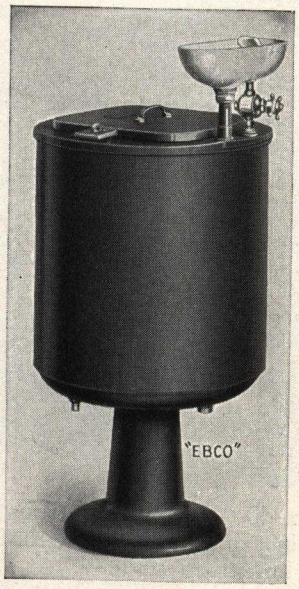
EBCO Two Compartment Flat Rim Model

Designed for tiled-in kitchens or kitchen cabinets. Embodies all features of the other models. Choice of round dishpan Model LR-141 or elliptical shape dishpan, Model LR-131. Model LR-141 is 39¼-inch in length; Model LR-131 is 30 inches. Write for special bulletin.



C-1500

Regulator only for installing in supply line to a single fountain.



C-271

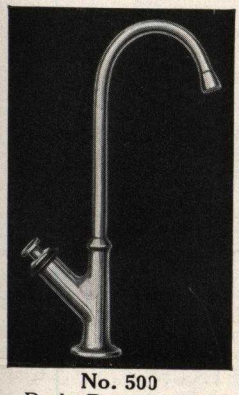
"EBCO" Iced Water Cooler

With one C-1300 **Automatic Stream Control Self - Closing Valve** and angle jet bubbler. Spiral coil of copper tubing tinned inside and out.



C-298-M

C-298-M — "EBCO" angle jet bubbler and guard. Bubbler and guard chrome plated. C-298-B—Bubbler only.



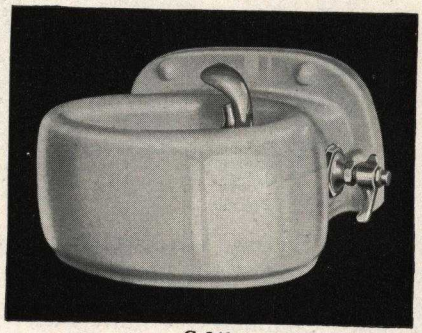
No. 500

Push Button Glass Filler.



No. 600

Glass Filler, Roller Bearing Self-Closing.



C-241

"EBCO" Vitreous China Wall Fountain

Mounted on concealed hangers. C-298-B angle stream bubbler and automatic stream control valve C-1400, and brass trap to wall. All exposed metal chrome plated. Width 14 inches. Depth (front to wall) 13½ inches.

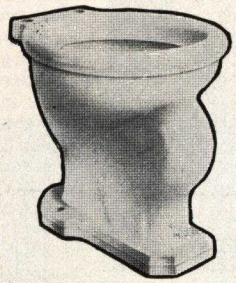
ECONOMY POTTERY COMPANY TRENTON, N. J.

213 Bunting Avenue

Represented by

Cowan Sales Company, 30 Church Street, New York, N. Y.

"Epco" Vitreous China Products



No. 14

No. 14—Syphon Action Washdown vitreous china Closet Bowl, square base, back spud. Regular 14-inch Roughing-in.

No. 16—Center outlet 16-inch Roughing-in.

Furnished either 1¼, 1½ or 2-inch Spud.



No. 140

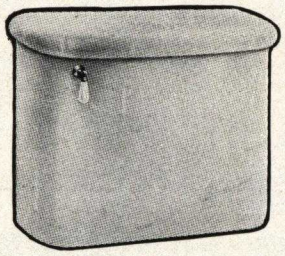
No. 140—Syphon Jet, vitreous china closet bowl, square base, heavy and well designed, top spud, 14-inch Roughing-in.

Furnished either 1¼, 1½ or 2-inch Spud. (Also made with side inlet. For flush valves.)



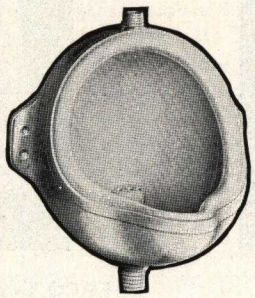
No. 30

No. 30—Basins, vitreous china, made Oval or Round, sizes 14, 14x17, 15x19 inches. Furnished No Overflow—Common Overflow. Patent Overflow for metal plug or Patent Overflow for Rubber Plug.



No. 7

No. 7—Low Down Vitreous China Tank, "Straight Front" Pattern, 7-gallon capacity, furnished with or without Fittings.



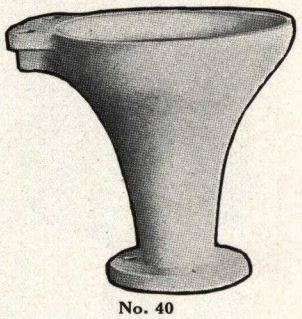
No. 2

"Bedfordshire" Lipped urinals, vitreous china—

No. 2—Flat Back.

No. 2—Corner.

(Made with brass spuds—on application only.)



No. 40

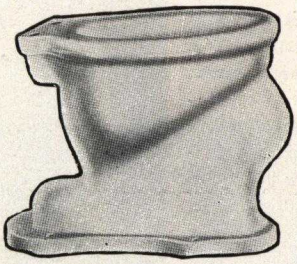
No. 40—Hoppers, vitreous china, flushing rim. With or without seat attachment, made in—

Tall Round.

Tall Oval.

Short Round.

Short Oval.



No. 10

No. 10—Syphon Action Washdown, vitreous china closet bowl, square base, long extended heel, back spud, 10-inch Roughing-in. Furnished either 1¼, 1½ or 2-inch Spud.



No. 3

No. 3—Front Outlet, washout vitreous china closet bowls, 1¼-inch Spud—

Also made back outlet or offset.



No. 50

No. 50—Gem Bowls, vitreous china, flushing rim, also known as Economic or Fulton bowl. With or without seat attachment.

"EPCO" products are HIGH GRADE hand pressed, Genuine "TWICE-FIRED" VITREOUS CHINA. Every bowl is carefully tested before it leaves the plant.

EXCELSO PRODUCTS CORPORATION

LADY LUXURY DIVISION—1807 Elmwood Avenue—BUFFALO, N. Y.

The Vanadoir—Its Use

The Lady Luxury Vanadoir, ultra-modern in design and finish, is a combination, all Furniture Steel Dressing Table with Cheval Mirror and Vitreous China Lavatory. This up-to-the-minute Plumbing Furniture is the newest and most outstanding development of the year in the plumbing industry—Lady Luxury Vanadoirs are priced in accordance with today's price trend.

Lady Luxury

VANADOIR

The Vanadoir permits lavatory facilities in entirely new places, such as bedrooms and dressing rooms in apartments, hotels and residences; in restrooms of clubs, theatres, public buildings and beauty shops and many other places. Bathroom facilities are greatly improved by the installation of the Vanadoir because it provides seven cubic feet of cabinet and drawer space in which to keep towels, toilet articles, lingerie and many other articles needed when dressing and making the toilette.

The Vanadoir is provided with four convenient electrical outlets to which may be connected boudoir lamps, curling irons and other electrical accessories.

Construction and Finishes

Cabinetry of the Vanadoir is of finest furniture steel with electric welded construction throughout, internally braced to insure rigidity and fully insulated to eliminate metallic sound. All plumbing is concealed, yet easily accessible through a removable panel underneath the lavatory. The entire cabinet is especially treated inside and out to prevent rust and corrosion.

The heavy plate glass Cheval Mirror has a protective copper coating and is steel framed and backed.

Vitreous china lavatories used in Vanadoirs are unique in design. All dirt catching metal parts are eliminated from the surface of the lavatory, and faucet and drain control handles are placed on the front or apron out of the way but still more accessible than conventional types of mountings.

Vanadoirs are finished in a wide variety of color combinations such as black, maroon and natural wood grain finish. Special color combinations are available on order. All Vanadoir furniture steel finishes are durable, water repellent baked enamel.

NEW BEAUTY



NEW UTILITY

Lady Luxury Vanadoir "Moderne"

In One Piece, a Combination Dressing Table, Lavatory and Cheval Mirror

The Lady Luxury Vanadoir "Moderne" shown above is quickly installed in any old or new building. No special setting such as tile flooring is required. Water and waste connections are first roughed-in through wall or floor, the Vanadoir set in place and all connections, including water and waste and electric connections are made through the removable panel underneath the lavatory. The Vanadoir is then ready for the many uses for which it is designed.

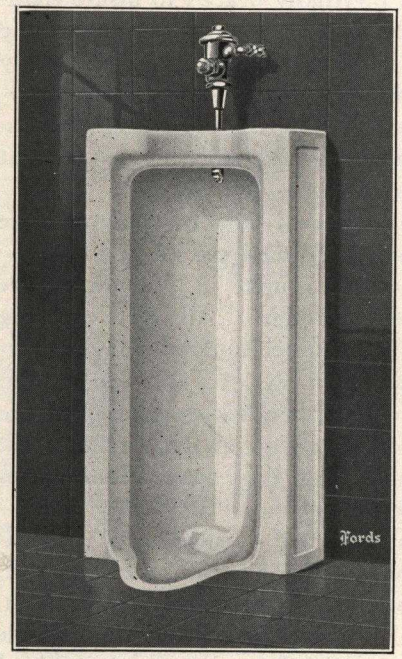
We invite your inquiries for further information on this striking, new piece of Plumbing Furniture, which is so needed in many residences and public buildings.

For Excelso Indirect Water Heaters See Page 680

FORDS PORCELAIN WORKS PERTH AMBOY, N. J.

Manufacturers of Porcelain and Vitreous China Sanitary Ware

OFFICES IN PRINCIPAL CITIES

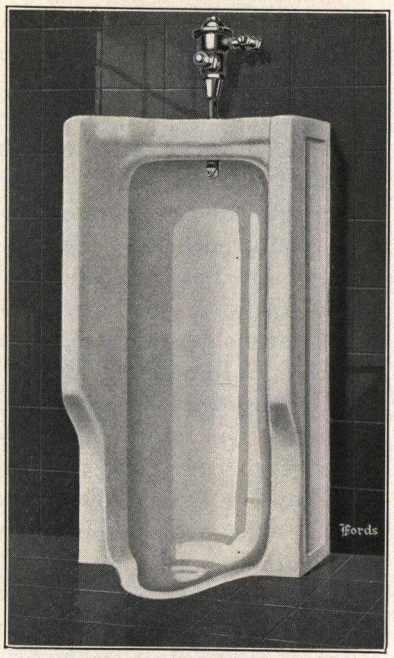


A-142-D

Porcelain Urinal Stalls

All porcelain urinal stalls are furnished as specified, unless otherwise ordered. When ordering, state whether urinals are to be used in battery, or to stand 6" apart. For bottom vent hood, specify regular plate number adding, "Vented."

To order urinal less all fittings omit the prefix "A". Backs and sides of urinal stalls may be ground to fit against tile or marble at a slight additional charge.



A-144-D

Specifications of A-142-D

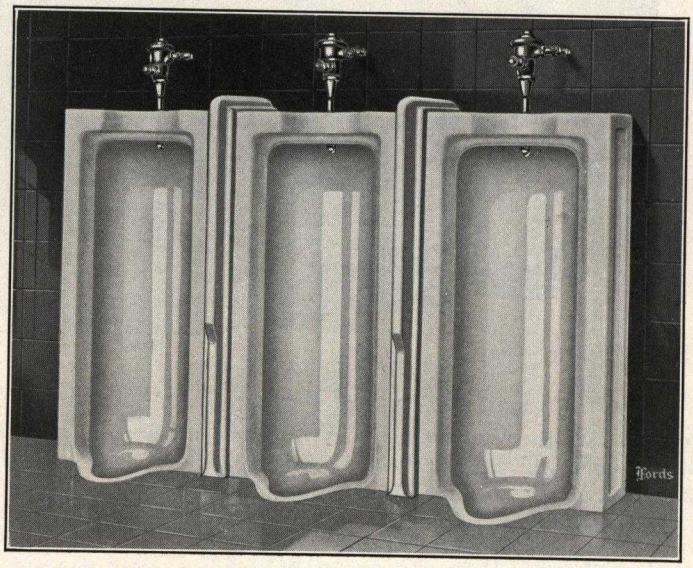
Fords Porcelain Straight Front Urinal Stall. N. P. Sloan flush valve ½" angle stop (616-D); N. P. spreader (613-D); N. P. strainer for 3" L. P. connection (600-D); sizes 18x42 and 24x42; weight 232 and 316 lbs. respectively.

Specifications of A-144-D

Fords Porcelain Wing Front Urinal Stall. N. P. Sloan flush valve ½" angle stop (616-D); N. P. spreader (613-D); N. P. strainer for 3" L. P. connection (600-D); sizes 18x42 and 24x42; weight 232 and 316 lbs., respectively.

Specifications of A-142-D2

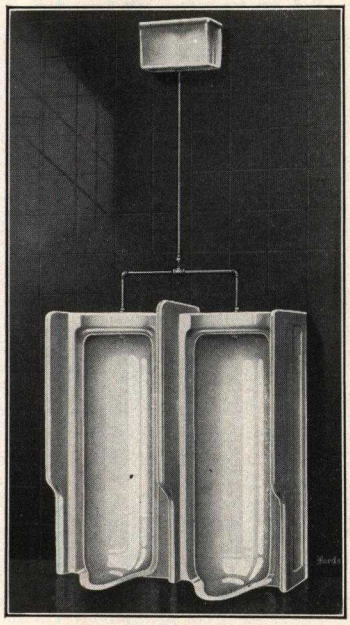
Fords Porcelain Straight Front Urinal Stall, set in battery of three with Loose Seam Covers. N. P. Sloan flush valve, ½" angle stop (616-D); N. P. spreader (613-D); N. P. strainer for 3" L. P. connection (600-D); sizes 18x42 and 24x42; weight 232 and 316 pounds respectively. Seam cover 87 lbs.



A-142-D2—With Loose Seam Covers

Description of A-142-D2

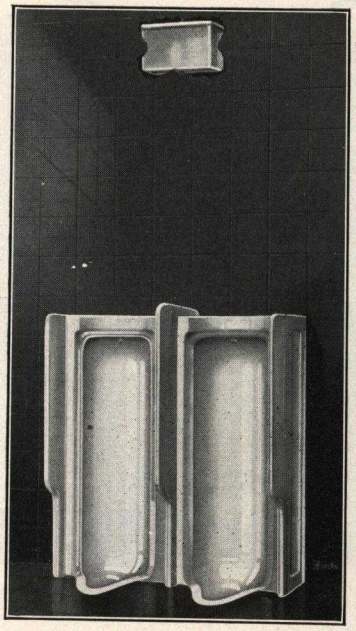
The installation shown at the left allows a large number of stalls to be placed in a given space. We recommend, however, the 205-D stalls shown on the opposite page for battery installation. The 205-D stalls are more sanitary as they have only one seam per stall to seal.



A-205-D—Two Urinals

Porcelain Urinal Stalls

The porcelain urinal stalls shown on this page have the Integral Seam Covers. Separate seam covers are therefore unnecessary. Each stall fits snugly into the other and a very neat appearing job is assured. Labor is saved when installing them, as it is necessary only to seal one joint instead of two. Also the stalls are ground, jointed and fitted at the factory to assure a perfect alignment. This type of urinal stall is highly recommended for battery installation.



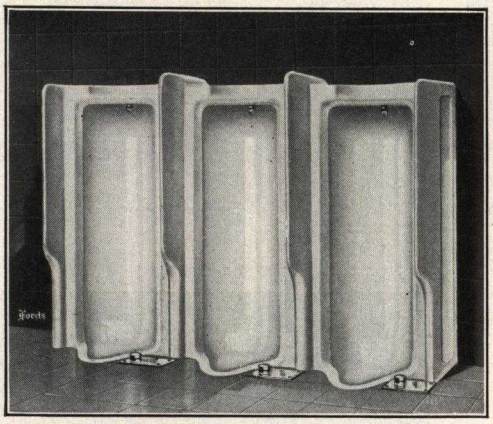
A-205-D3—Two Urinals

Specifications of A-205-D

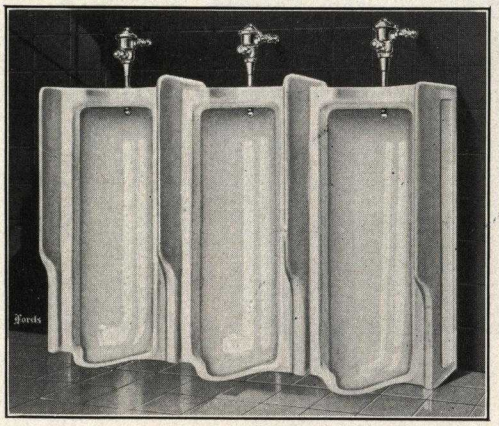
Fords Porcelain Interlocking Integral Seam Cover Urinal Stall with Wing Front, set in battery of two. Fords Vitreous China Automatic 5 gal. high tank with N. P. flush pipes to flush two urinals (A-633-D and 618-D); N. P. spreader (613-D); N. P. strainer for 3" L. P. connection (600-D); sizes 18x42 and 24x42; average weight per stall 317 and 349 lbs. respectively.

Specifications of A-205-D3

Fords Porcelain Interlocking Integral Seam Cover Urinal Stall with Wing Front, set in battery of two. Fords Vitreous China 5 gal. concealed automatic high tank with flush pipes to flush two urinals (A-633-D and 622-D); N. P. spreader (613-D); N. P. strainer for 3" L. P. connection (600-D); sizes 18x42 and 24x42; average weight per stall 317 and 349 lbs. respectively.



A-205-D8—Three Urinals



A-205-D6—Three Urinals

Specifications of A-205-D8

Fords Porcelain Interlocking Integral Seam Cover Urinal Stall with Wing Front, set in battery of three. N. P. spreaders for back supply (614-D); N. P. strainers for 3" L. P. connection (600-D); Fords cast brass concealed pedal, self-closing flush valve with loose key control stop (583-D); sizes 18x42 and 24x42; average weight per stall 317 and 349 lbs. respectively.

Specifications of A-205-D6

Fords Porcelain Interlocking Integral Seam Cover Urinal Stall with Wing Front, set in battery of three. N. P. Sloan flush valve ½" angle stop (616-D); N. P. spreaders (613-D); N. P. strainers for 3" L. P. connection (600-D); sizes 18x42 and 24x42; average weight per stall 317 and 349 lbs. respectively.

GENERAL CERAMICS COMPANY NEW YORK, N. Y.

General Office: 71 West 35th Street

Manufacturers of Solid Porcelain Plumbing Fixtures and Chemical Stoneware

This company is one of the largest manufacturers of acid-proof, solid porcelain plumbing fixtures and fully guarantees its products to be of the highest obtainable quality. For complete information, our catalogue will be furnished upon request.

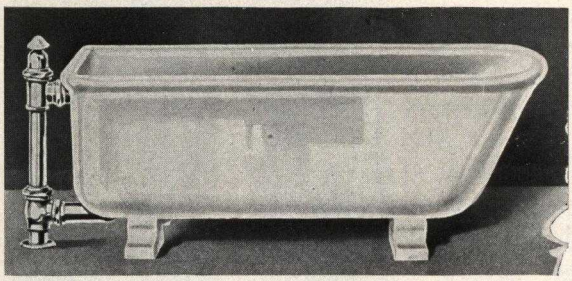


Plate B-6055

Phoenix Continuous Flow Hospital Bath

With bottom inlet. May be cut to order for fixtures as desired.

Length over all	5 ft. 6 in.	6 ft. 0 in.	6 ft. 6 in.
Width over all, inches	33	33	33
Inside depth, inches	19	19	19
Height rim to floor line	28	28	28
Shipping weight, lbs.	775	850	900

Supported on porcelain block feet.

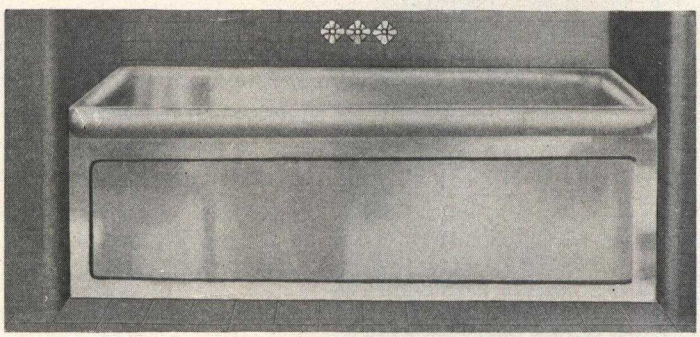


Plate B-1006

Phoenix Bottom Outlet Bath

For tiling into recess cut for concealed fixtures with outlet at either end.

Length over all	4 ft. 6 in.	5 ft. 0 in.	5 ft. 6 in.	6 ft. 0 in.
Width over all, inches	30	30	30	30
Height over all, inches	20	20	20	20
Shipping weight, lbs.	600	650	700	800

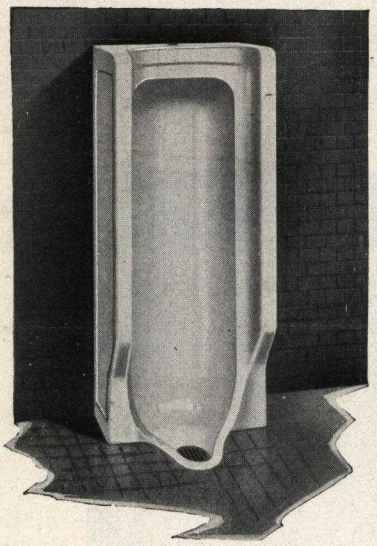


Plate B-5025

Phoenix Urinal Stall

With integral extended side shields.

Width, inches	18	24
Height over all, inches	42	42
Height from top to floor line	38	38
Shipping weight, lbs.	250	320

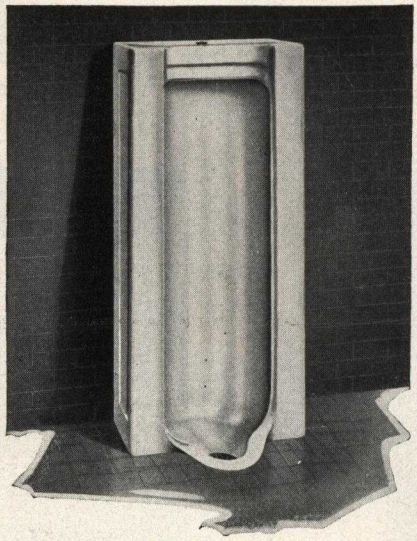


Plate B-5030

Phoenix Urinal Stall

With straight front sides.

Width, inches	18	21	24
Height over all, inches	42	42	42
Height from top to floor line	38	38	38
Shipping weight, lbs.	240	265	300

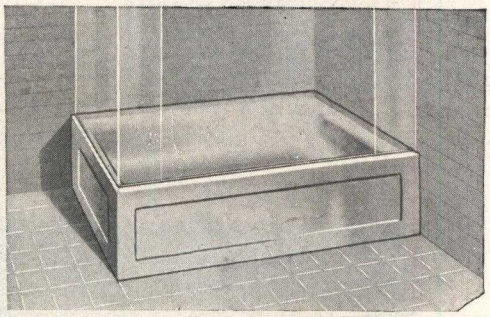


Plate B-1051

Phoenix Corner Shower Receptor

8 inches deep, outside.

Width over all, inches	30	36	42
Front to back, inches	30	36	42
Shipping weight, lbs.	275	300	375

For tiling into either right or left-hand corner.

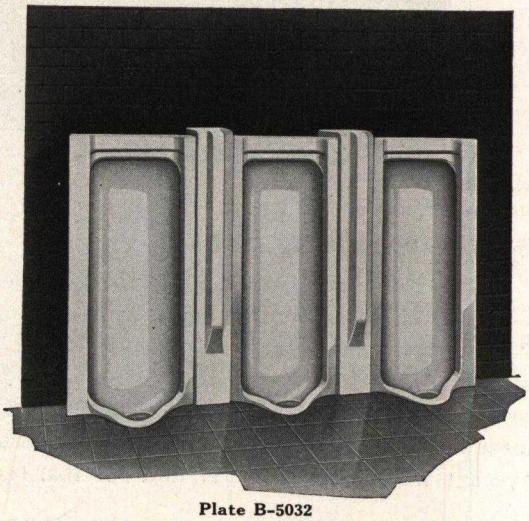


Plate B-5032

Phoenix Interlocking Urinal Stalls

With overlap partition shields. Furnished in batteries to set 21 inches, 24 inches and 27 inches, center to center.

Width, inches	18	21	24
Height over all, inches	42	42	42
Height from top to floor line, inches	38	38	38
Shipping weight, stalls, lbs.	240	265	300
Shipping weight, partitions, lbs.	80	80	80

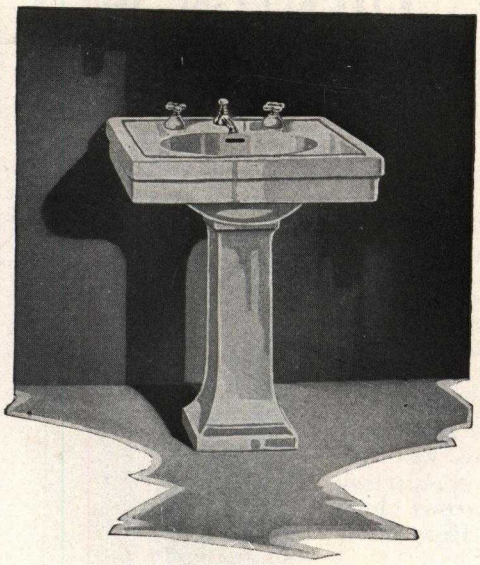


Plate B-2011

Color

Practically all PHOENIX plumbing fixtures can be furnished in any of the standard colors. In keeping with the excellent quality of these fixtures the colored glazes are the best obtainable. They are solid shades throughout each piece or set of fixtures and are clear and attractive.



Plate B-3051

Phoenix Square Lavatory

Parmint Model. On plain pedestal only.

Length, inches	24	26
Width, inches	20	22
Height from rim to floor line	31	31
Shipping wt., includes pedestal, lbs.	150	160

Phoenix Kitchen Sink

With 9-inch integral back. Supported on porcelain legs.

Length over all, inches	24	27	30	36	42	48
Width over all, inches	20	24	22	24	24	26
Inside depth, inches	7	7	7	7	7	7
Height from rim to floor line	(32, 34 or 35 inches)					
Shipping weight, lbs., includes legs	165	195	210	280	380	460

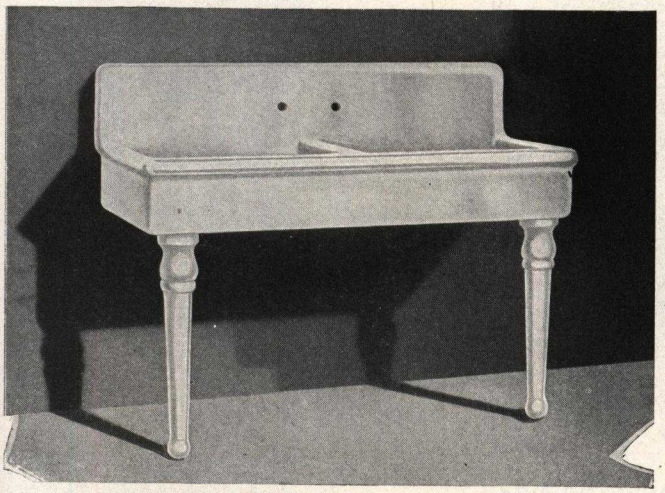


Plate B-3059

Phoenix Kitchen Rinsing Sink

With 9-inch integral back and with center partition.

Length over all, inches	42	48	56	61
Width over all, inches	24	26	26	26
Height from rim to floor line	34 or 36	34 or 36	34 or 36	34 or 36
Shipping weight, lbs., includes legs	375	410	430	480

General Catalog showing General Ceramics Company's extensive line of Solid Porcelain Plumbing Fixtures and Chemical Stoneware will be sent on request.



Plate B-4010

Phoenix Single Laundry Trays

With 6-inch integral back full roll rim. Supported on porcelain legs.

Length over all, inches	26	30
Width over all, inches	26	26
Inside depth, inches	14½	15
Height from rim to floor line	32, 34 or 36 inches	
Shipping weight, lbs., includes legs	285	310

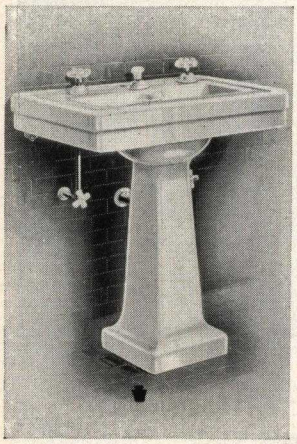
KEYSTONE POTTERY COMPANY TRENTON, N. J.

New York and Olden Avenues

Representative:

Chicago, Ill., MacCrillis N. Butler, Room 2100 228 N. La Salle Street

Keystone Pottery



106 F

Plate 106 F—Salem

"Salem" 24x20 and "Ocean" 27x22 vitreous china lavatories with concealed spout, pedestal pattern.

Also made with square leg support instead of pedestal "Sussex" 21x19 and "Camden" 24x20.

Plate 120 F—Bergen

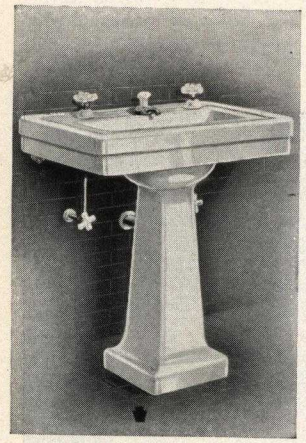
"Bergen" 21x19 and "Hudson" 24x20 vitreous china lavatories on square center leg. Concealed front overflow under anti-splash rim.



120 F

Plate 122 F—Mercer

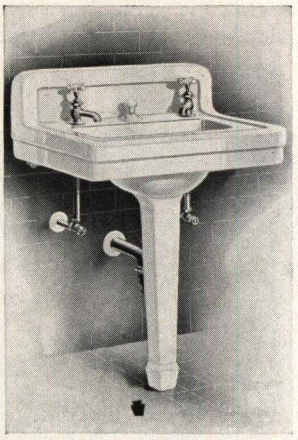
"Mercer" 24x20 and "Burlington" 27x22 vitreous china lavatories. Concealed front overflow under anti-splash rim.



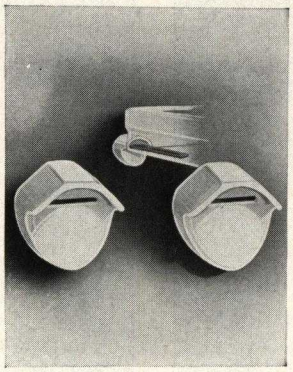
122 F

Plate 124 F—Cape May

"Ashland" 20x18, "Cape May" 21x19 and "Essex" 24x20 vitreous china lavatories with 6-inch back and square legs support. Square basin and concealed overflow.



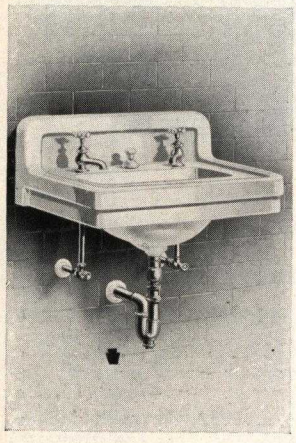
124 F



148 F

Plate 148 F—China Housing

For Lavatory Knee Bracket Covers white painted iron bracket making all china job. Use in place of chrome plated brass bracket.



126 F

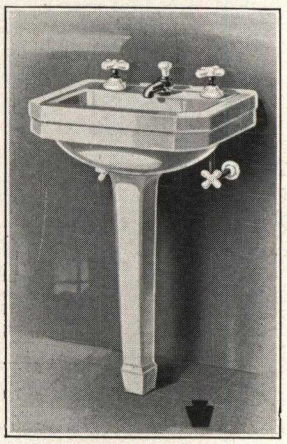
Plate 126 F—Holly

"Holly" 20x18, and "Monmouth" 24x20 wall hung vitreous china lavatories. For concealed C. I. hanger. Square basin and concealed overflow.

Plate 132 F—Erie

"Erie" vitreous china lavatory. Size 19x16 inches. For the job where space is of chief concern.

"Luzerne" Plate 130 F is same as plate 132 except with back.



132 F

Keystone Pottery



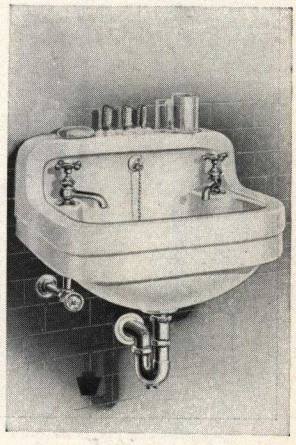
138 F

Plate 138 F—Pike

"Pike" vitreous china lavatory. Size 21x19 inches, having large square basin 15½x11 inches. Pedestal in proportion. Sells at competitive price. Overflow does not show.

Plate 142 F—Chester

"Chester" vitreous china lavatory. Size 15x19 inches with basin 10x15½ inches. Accessories built in. Made also less tooth brush holes for first floor lavatory. Variation is the "Fresno" having controls through back.



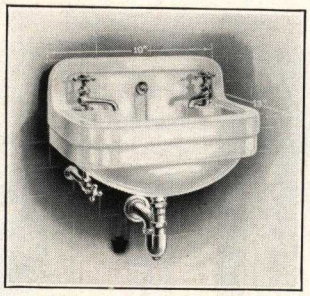
142 F



134 F

Plate 134 F—Braddock

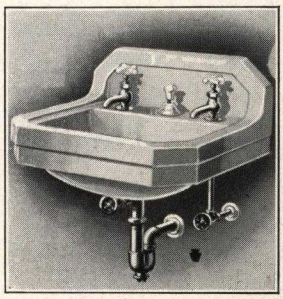
"Braddock" vitreous china lavatory, size 24 x 13 inches. Extra deep basin size 15 x 9¾ inches. Faucet holes 18-inch centers. Can be used with chain stay.



150 F

Plate 150 F—Delray

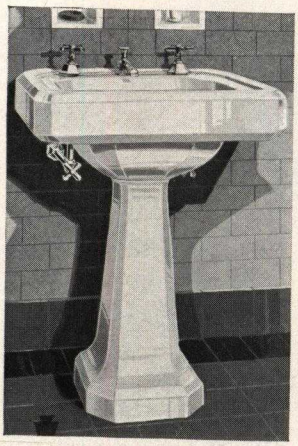
"Delray" vitreous china lavatory only 19 inches along wall and 13 inches front to back. But note basin is 10x15½ inches and extra deep. The overflow is concealed and does not show.



194 F

Plate 194 F—Somerset

"Somerset" wall hung vitreous china lavatory. Size 19x16 inches. Size of basin 15x9½ inches. Faucet holes have 10-inch centers. Overflow does not show. A competitive lavatory.



152 F

Plate 152 F—Cairo 24x20

"Carteret" 30x24, "Berkeley" 27x22 and "Cairo" 24x20 vitreous china lavatories of unusual lines. To correspond with either "Stuart" Plate 408 F or "Athens" Plate 410 F combinations.

Plate 156 F—Putnam

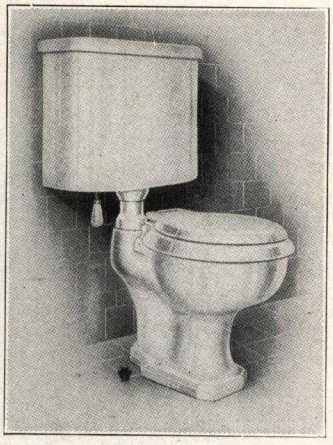
"Putnam" 24x20 and "Macon" 27x22 vitreous china lavatories correspond with the "Berkeley" and "Cairo" but having leg support. Note these lavatories have the overflow concealed. It does not show.



156 F

See Following Page

Keystone Pottery



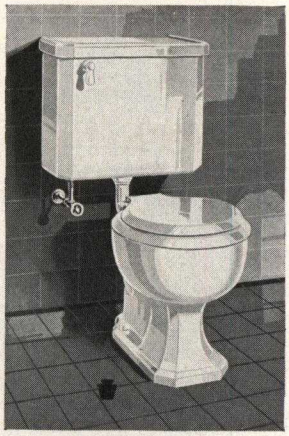
300 F

Plate 300 F—Silent

"Silent" an all china covered white siphon jet. Quiet in operation. Equipped with loose dangle bottom pull trip. Roughs in at 12 inches. Rounded front tank.

Plate 420—Gibson

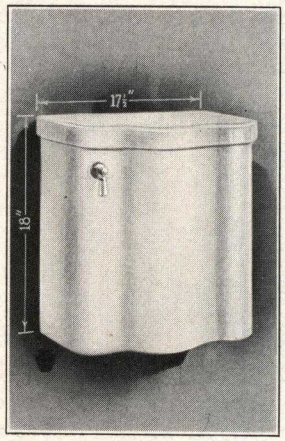
Reverse trap made for either 12 or 14-inch rough. Tank has raised outer edge. A real shelf.



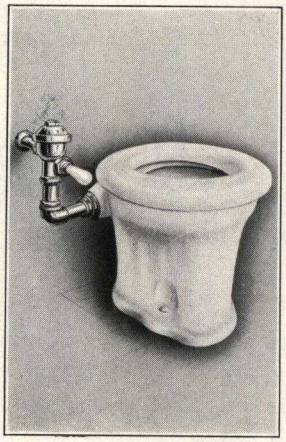
420

Plate 352 F—Naro

"Naro" tanks. A special tank built for use where space is limited. Only 17½ inches wide, yet holds ample supply of water for ordinary bowl. Note side dimension.



352 F



378 F

Plate 378 F—Giant

"Giant" heavy washdown bowl made of extra thickness and has extra large passage through trap. Made with either side or rear spud. Bowl also constructed for seat attachment.



404 F

Plate 404 F—Atlas

"Atlas" a trim, good looking, blended competitive outfit. Syphon action bowl with jet and flat rim. Tank has ground back.

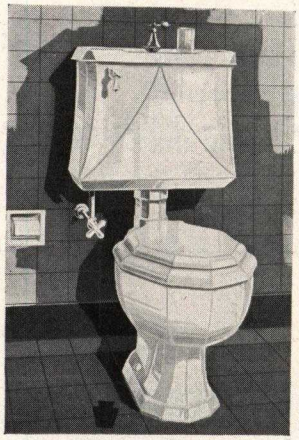
Plate 426—New Era

A washdown but no front hump. Made for 12 and 14-inch rough.



426

Keystone Pottery



408 F

Plate 408 F—Stuart

The "Stuart" is distinctive, different and unusual for the residence. Extra large bowl obviating any contact of the person. Connection between tank and bowl covered with china housing.



410 F

Plate 410 F—Athens

The "Athens" is a companion toilet for the "Stuart." A bit more conservative still away from the class of the usual kind. Connection between tank and bowl covered with china housing.



434

Plate 434—Roman

Elongated or extra size top. Roughs 12 inches. Elongated top made on reverse trap as well.



507

Plate 507—Hital

"Hital" pedestal urinal. 28 inches high overall. Used in connection with flush valve or automatic tank. Made for top spud.



436

Plate 436—Ontario

Syphon jet for use with flush valve. Bowl roughs 6 inches from center of supply to center of outlet.

RICHMOND RADIATOR COMPANY, INC. NEW YORK, N. Y.

General Office—1480 Broadway cor. 42nd Street

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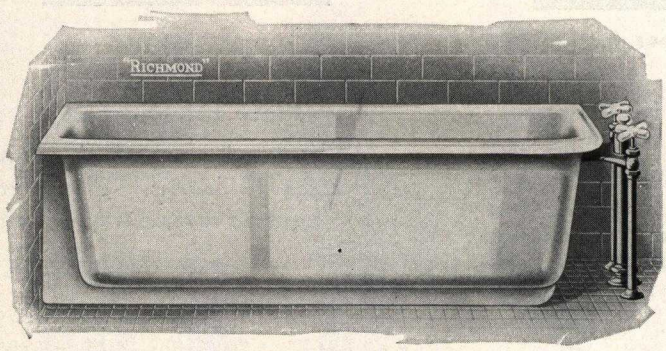
FACTORIES

Norwich, Conn. Uniontown, Pa.

MANUFACTURERS OF

"RICHMOND" Enameled Ware

"RICHMOND" Baths



Richmond Corner Bath—J-460

Richmond Corner Baths

Cast Iron Enameled
Single Shell Tiled-in

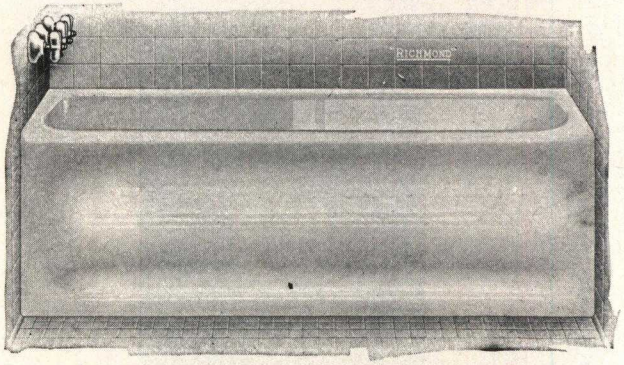
Made in two sizes, 5 and 5½ feet.
J-460 L. H. Corner.
R. H. Waste Outlet.
J-461 R. H. Corner.
L. H. Waste Outlet.
J-470 L. H. Corner.
L. H. Waste Outlet.
J-471 R. H. Corner.
R. H. Waste Outlet.

Furnished Enameled inside only or Enameled all over.

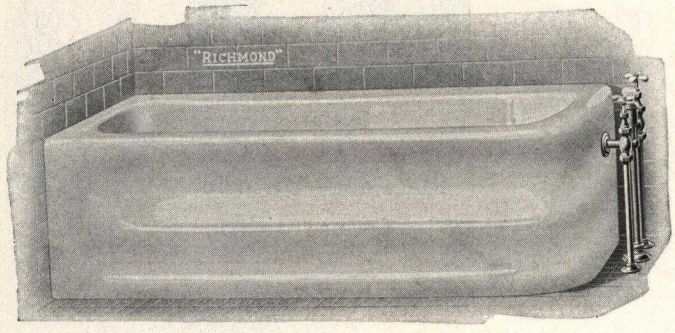
Richmond Recess Baths

Cast Iron Enameled
Double Shell Tiled-in

Made in two sizes, 5 and 5½ feet.
J-315 R. H. Waste.
J-317 L. H. Waste.



Richmond Recess Bath—J-317



Richmond Corner Bath—J-310

Richmond Corner Baths

Cast Iron Enameled
Double Shell Tiled-in

Made in two sizes, 5 and 5½ feet.
J-305 for R. H. Corner.
L. H. Waste Outlet.
J-310 for L. H. Corner.
R. H. Waste Outlet.
J-307 for R. H. Corner.
R. H. Waste Outlet.
J-312 for L. H. Corner.
L. H. Waste Outlet.

"RICHMOND" Enameled Baths and Lavatories

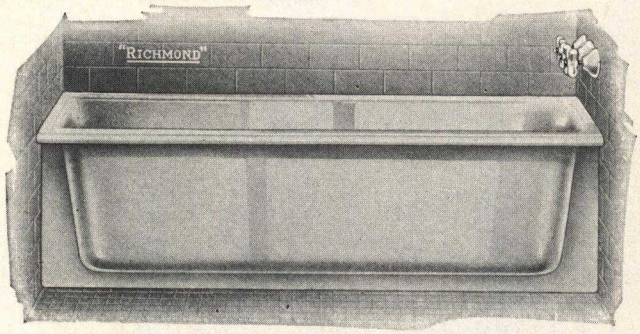
Richmond Recess Baths

Cast Iron Enameled
Single Shell Tiled-in

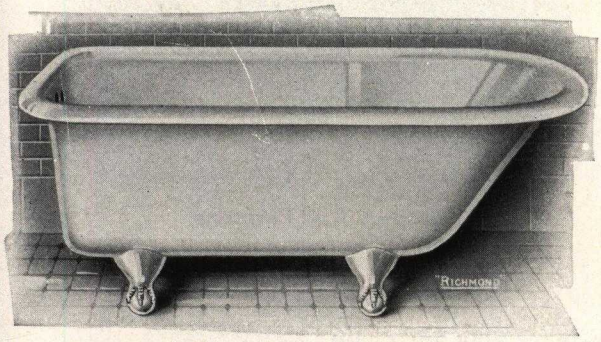
Made in two sizes, 5 and 5½ feet.

J-480 R. H. Waste.
J-481 L. H. Waste.

Furnished Enameled inside only or Enameled all over.



Richmond Recess Bath—J-480



Richmond Roll Rim Tub—On Feet

Richmond Roll Rim Tubs

On Feet
Cast Iron Enameled

Made in two widths, 26 inches and 30 inches.

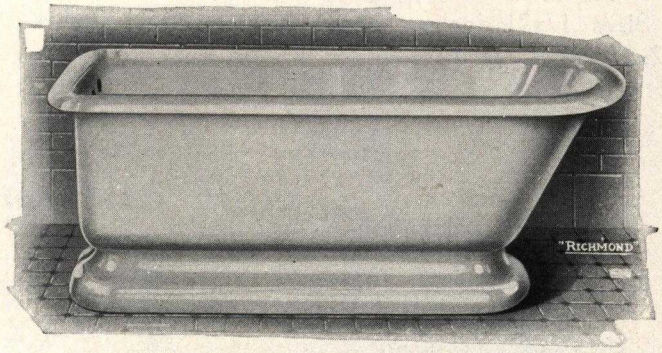
Made in four lengths, 4 feet, 4½ feet, 5 feet and 5½ feet.

Richmond Roll Rim Tubs

On Base
Cast Iron Enameled

Made in two widths, 26 inches and 30 inches.

Made in three lengths, 4½ feet, 5 feet and 5½ feet.



Richmond Roll Rim Tub—On Base



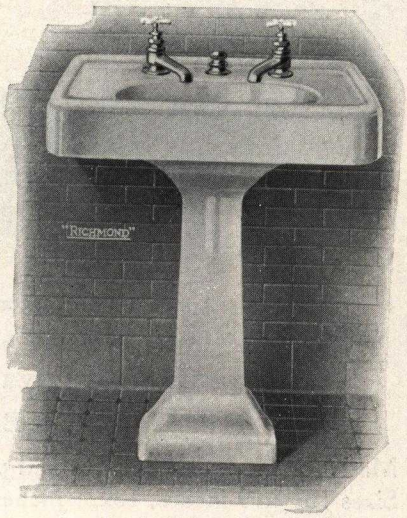
Oval Pedestal Lavatory

Oval Pedestal Lavatory

Made for Lift Waste and Pop-Up. Size, 22x33 inches.

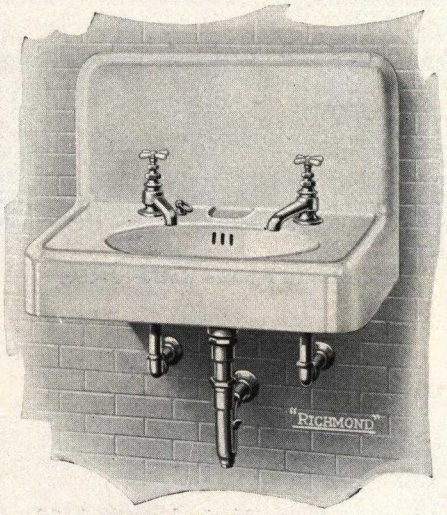
Pedestal Lavatory

Made for Lift Waste and Pop-Up. Sizes, 18x24 inches, 20x24 inches, 22x27 inches.



Square Pedestal Lavatory

"RICHMOND" Enameled Wall Lavatories



Apron Wall Lavatory

Apron Wall Lavatory

Flat Back with Depressed Soap Cup

Made for lift waste, pop-up or plug and chain.
Sizes 17x21 inches, 18x24 inches, 20x24 inches, 22x27 inches.



Compact Wall Lavatory

Compact Wall Lavatory

Made for plug and chain.
One size only—14x26 inches.

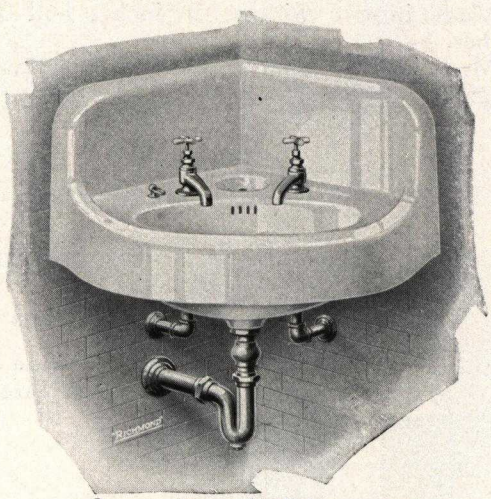


Apron Wall Lavatory

Apron Wall Lavatory

Half Circle, Flat Back

Made for lift waste, pop-up and plug and chain.
Sizes 16½x19 inches, 18x21 inches.

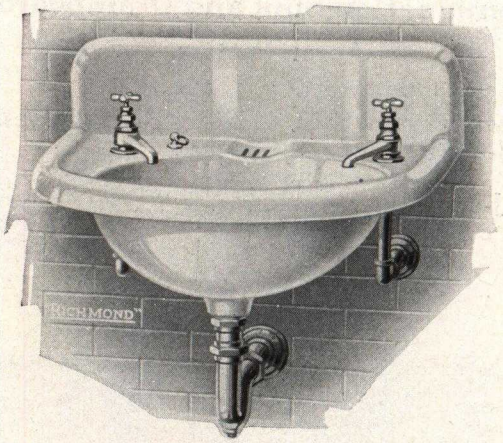


Corner Apron Wall Lavatory

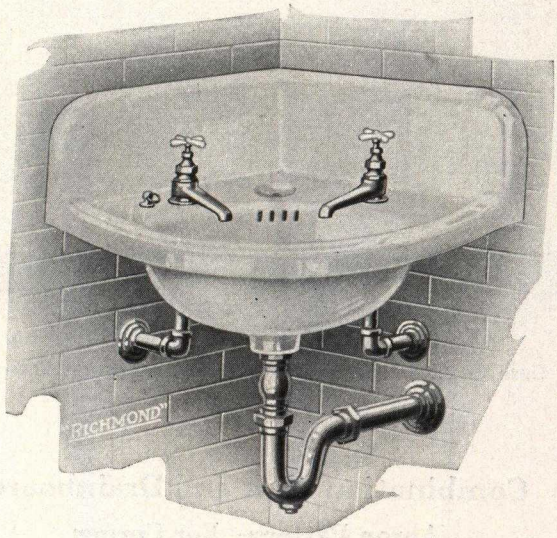
Corner Apron Wall Lavatory

Made for lift waste, pop-up or plug and chain.
Sizes 16⅝ inches, 17¾ inches.

"RICHMOND" Enameled Wall Lavatories



Roll Rim Wall Lavatory



Corner Roll Rim Wall Lavatory

Roll Rim Wall Lavatory

Flat Back Depressed Soap Cup

Made for plug and chain only.

Sizes 18x21 inches, 16x19 inches, 16x15 inches.

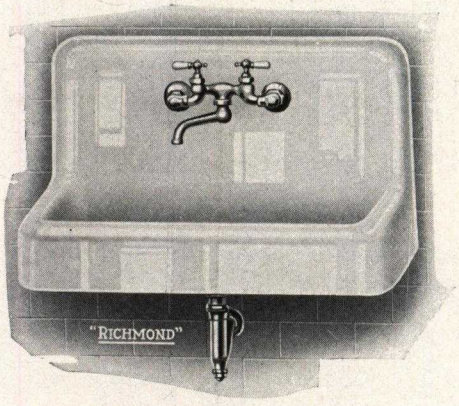
Corner Roll Rim Wall Lavatory

Depressed Soap Cup

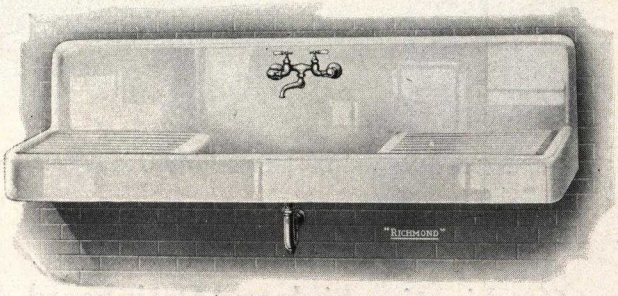
Made for plug and chain only.

Sizes 17¾ inches, 15⅝ inches, 16 inches.

Richmond Enameled Sinks



Apron Sink



Double Drainboard Sink

Apron Sink

12-inch Back—5½-inch Apron.

Sizes, 20x24 inches, 20x30 inches.

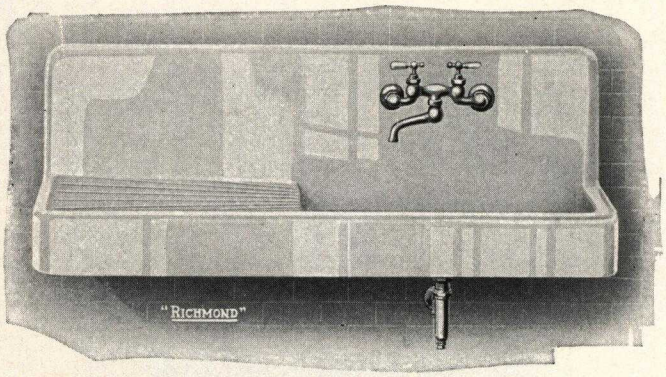
Double Drainboard Sink

Apron Pattern

12-inch Back—6-inch Apron.

Size, 60 inches long, 22 inches wide.

"RICHMOND" Enameled Combination Sinks



Combination Sink and Drainboard—Apron Pattern.

Combination Sink and Drainboard

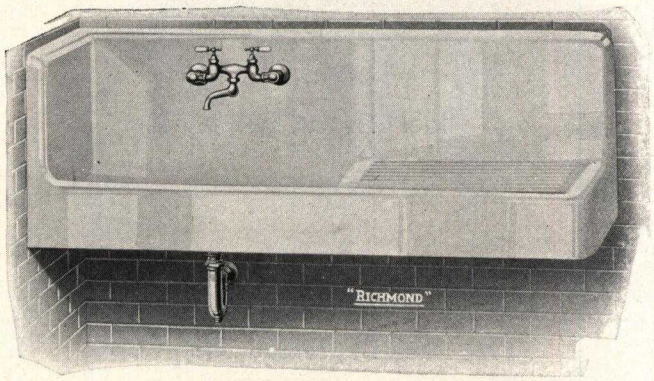
Apron Pattern

12-inch Back—5½-inch Apron.
Made in two sizes, 42 inches and 52 inches.
J-880 R. H. Sink.
L. H. Drainboard.
J-881 L. H. Sink.
R. H. Drainboard.

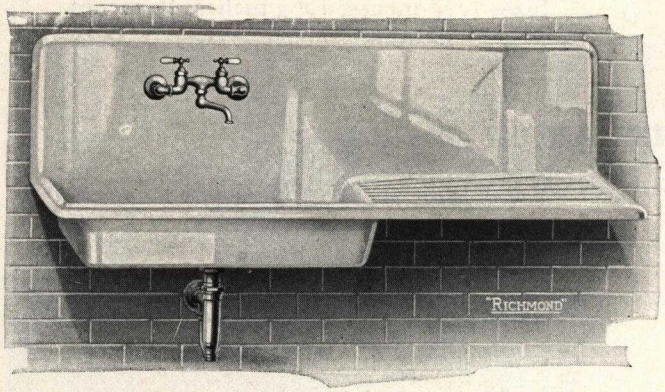
Combination Sink and Drainboard

Apron Pattern—For Corner

12-inch Back—5½-inch Apron.
Made in two sizes, 42 inches and 52 inches.
J-882 for L. H. Corner.
J-883 for R. H. Corner.



Combination Sink and Drainboard—Apron Pattern—Corner.



Combination Sink and Drainboard—Roll Rim Pattern.

Combination Sink and Drainboard

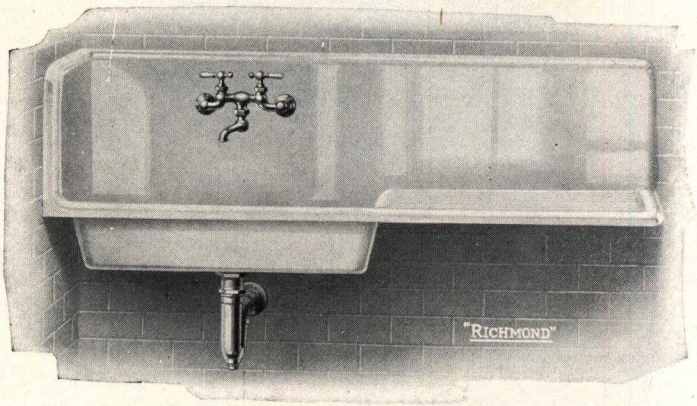
Roll Rim Pattern

12-inch Back.
Made in two sizes, 42 inches and 52 inches.
J-890 R. H. Sink.
L. H. Drainboard.
J-891 L. H. Sink.
R. H. Drainboard.

Combination Sink and Drainboard

Roll Rim Pattern—For Corner

12-inch Back.
Made in two sizes, 42 inches and 52 inches.
J-892 for L. H. Corner.
J-893 for R. H. Corner.

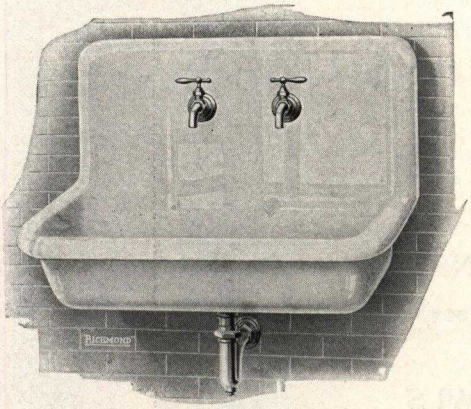


Combination Sink and Drainboard—Roll Rim Pattern—Corner.

"RICHMOND" Enameled Sinks

Sink and Tray Combinations

Roll Rim Slop Sinks

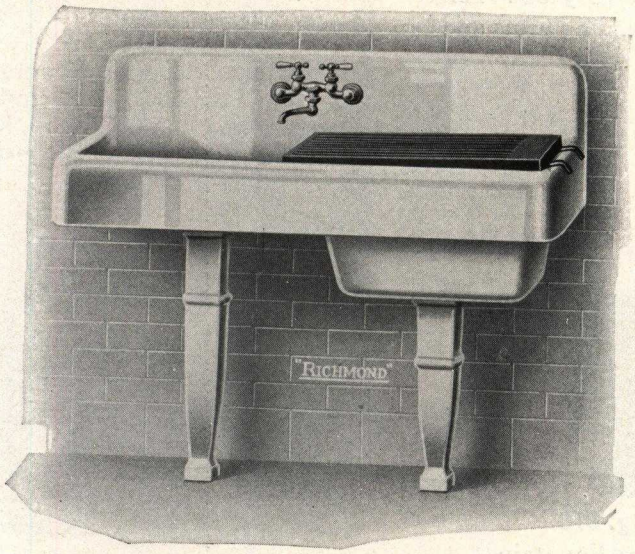


Roll Rim Sink

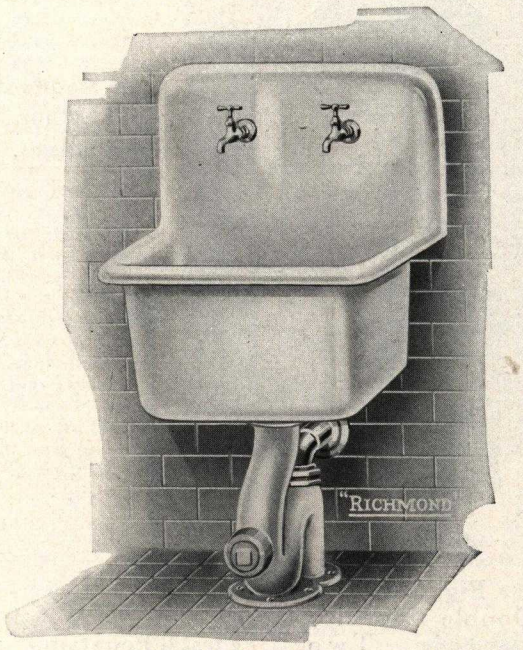
Roll Rim Sinks

8-Inch Back

Sizes, 18x18 inches, 18x24 inches, 18x30 inches, 20x20 inches, 20x24 inches, 20x30 inches, 20x36 inches, 22x36 inches.



Sink and Tray Combination



Roll Rim Slop Sink

Sink and Tray Combinations

Made in Two Patterns, Roll Rim and Apron

J-960—Apron L. H. Sink, R. H. Tray.
J-961—Apron R. H. Sink, L. H. Tray.
J-962—Roll Rim L. H. Sink, R. H. Tray.
J-963—Roll Rim R. H. Sink, L. H. Tray.

Made in two sizes, 42 inches and 50 inches.

Roll Rim Slop Sinks

12-inch Back—3-inch Trap.
Size, 20x22 inches.

Made with either half or full S-Trap.

MANUFACTURING EQUIPMENT & ENGINEERING CO.

FRAMINGHAM, MASS.



Fig. 929
Ice-Cooled Drinking Fountain with slant stream and Guard-Bowl. 80 lbs. ice capacity. List price, $66.00.

METAL MEECO PRODUCTS

MEECO

SANITARY DRINKING FOUNTAINS

(Wall, Pedestal and Ice Coolers)

and

INDIVIDUAL WASHBOWLS

for

Factories, Schools, etc.

The standard for over 25 years. Endorsed by hundreds of leading firms and municipalities.

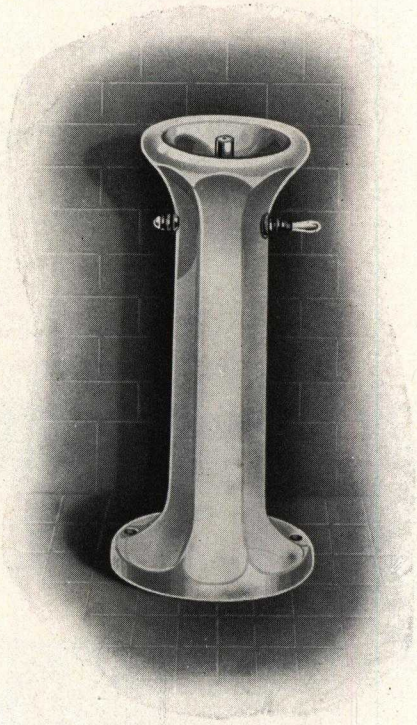


Fig. 915
Solid China Pedestal Fountain. China top bubbler. Self-closing oscillating china handle. Loose key stop 1¼" waste to floor. All inside fountain. List price, $40.00



Fig. 922
Double Capacity Fountain. Two bowls. Ice capacity 120 lbs.
List price, $105.00



Fig. 902
Pedestal Fountain. Guard-bowl, slant-stream bubbler.
List price, $19.00



Fig. 916
Tumbler Fountain for Restaurants, Cafeterias, etc.
List price, $85.00

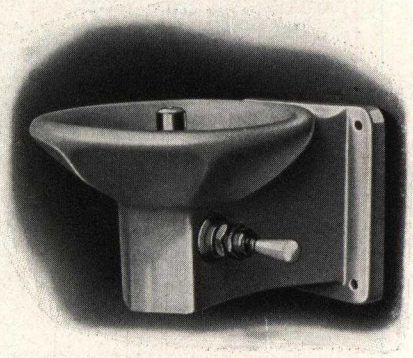
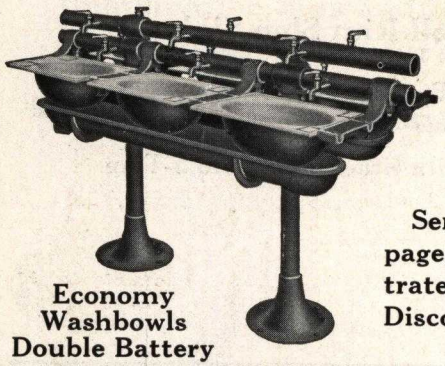
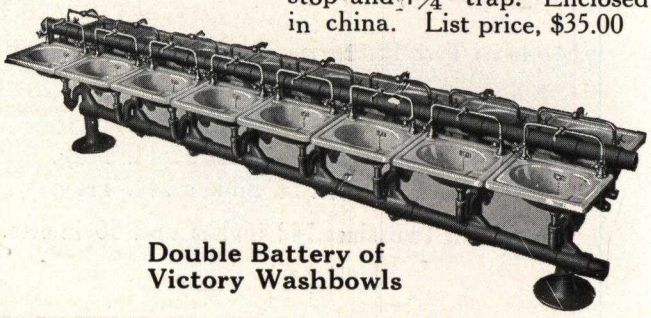


Fig. 914
Solid China Wall Fountain complete. China top bubbler. Self-closing oscillating china handle. Loose key stop and 1¼" trap. Enclosed in china. List price, $35.00



Economy Washbowls Double Battery

Send for new 52-page, complete illustrated Catalog and Discount Price - List.



Double Battery of Victory Washbowls

THE HALSEY W. TAYLOR CO. WARREN, OHIO

Main Office and Factory—137 North Street, N. W.

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Syracuse, N. Y.
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Washington, D. C.
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Automatic Stream Control Drinking Fountains

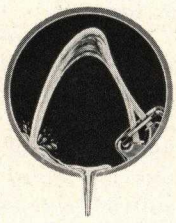
Products

Halsey Taylor Sanitary Drinking Fountains (Patented) Automatic Stream Control; Practical Drinking Mound, Non-squirting.

Also Electric Coolers and Ice Coolers.

Features

Halsey Taylor Fountains promote sanitation and drinking convenience due to patented and distinctive features not incorporated in other fountains.



Trade Mark

Practical Automatic Stream Control provides constant height in the drinking stream even though line pressure may vary 50 lbs. Stream is never too high or too low.

Two-stream Projector makes the side stream really practical and removes objections found with ordinary side-stream fountains because of hose-like stream. It is impractical for lips to touch projector and impossible to squirt the water. Many other types in our complete line. Write for catalog.

No. 601 and No. 602 Vitreous China Wall Fountain



Specification—Halsey Taylor No. 601 heavy vitreous china wall drinking fountain with integral trap housing, concealed wall hanger, brass strainer, self-closing stop with cross handle, loose key regulator and union connection for ⅜-inch iron pipe supply, brass trap for 1¼-inch iron pipe outlet, 2-stream mound building projector and Taylor automatic stream control. All exposed fittings chromium plate.

No. 602 Specification—Same as above, except furnished less trap and with waste fittings for drain to wall.

Shipping weight, 40 pounds.

Dimensions

	Inches		Inches
Depth of receptor	3¼	Width	11
Projection from wall	11¼	Supply	⅜
		Waste	1¼

Price

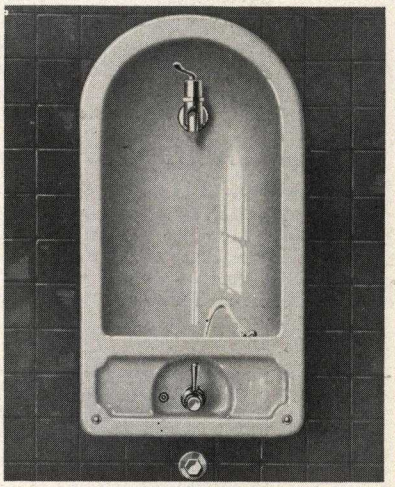
No. 601, as described and complete with trap, each.....$35.00

No. 602, as described complete less trap and with waste fitting for drain to wall, each..$32.00

No. 626 Vitreous China Recessed Wall Fountain with Glass Filler

Specification—Halsey Taylor No. 626 heavy vitreous china recessed wall drinking fountain; brass strainer; self-closing lever handle stop; loose key regulator and union connection for ⅜-inch iron pipe supply; 1½-inch New York regulation trap with clean-out and metal wall flange; equipped with oscillating lever handle glass filling faucet through back; 2-stream mound building projector and Taylor automatic stream control. All exposed fittings chromium plate. When ordering state whether for plaster or marble wall.

Shipping weight, 110 pounds.



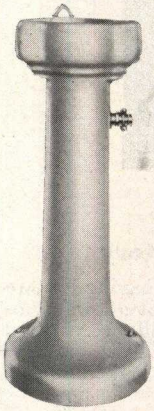
Dimensions

	Inches		Inches
Width over all	16	Supply	⅜
Height over all	29½	Waste	1½
Receptor opening	12½ inches wide by 20¾ inches high by 10 inches deep		

Price

As described, each.....$105.00

No. 616 Vitreous China Pedestal Fountain



No. 616

Specification—Halsey Taylor No. 616 heavy vitreous china pedestal fountain with 10-inch x 13-inch receptor; brass strainer; cast brass supply and waste connection; self-closing stop with loose key volume regulator at side of pedestal; floor screws with cap nuts; ⅜-inch iron pipe supply; 1-inch waste; 2-stream mound building projector and Taylor automatic stream control. All exposed fittings chromium plate.

30-inch height, shipping weight, 85 pounds; 36-inch height, shipping weight, 94 pounds.

Dimensions

	Inches		Inches
Receptor	10x13	Diameter of pedestal at floor	15
Height top of pedestal	30 or 36	Supply	⅜-inch I. P.
Depth of receptor inside	3½	Waste	1-inch I. P.

Price—as described, each

30-inch height.....$66.00 36-inch height.....$70.00

No. 520-68 Pedestal Fountain

Specification—Halsey Taylor No. 520-68 Pedestal Fountain; receptor made from cast iron, vitreous enameled; set in cast iron protecting shield; heavy cast iron top and base; 4-inch outside diameter steel tubing standard; enclosed galvanized supply and waste pipes; self-closing stop; loose key volume regulator concealed in base; ⅜-inch iron pipe supply; 1-inch waste; 2-stream mound building projector and Taylor automatic stream control. All exposed fittings chromium plate. Finished in gray.

Shipping weights, 87, 90 and 95 pounds, respectively.

Dimensions

	Inches		Inches
Receptor	7½x10	Height of base cover	10½
Diameter adjustable base cover	16½	Supply	⅜-inch I. P.
		Waste	1-inch I. P.

Prices

As described each 39-inch height.....$40.00
36-inch height.....$39.00 42-inch height..... 41.00

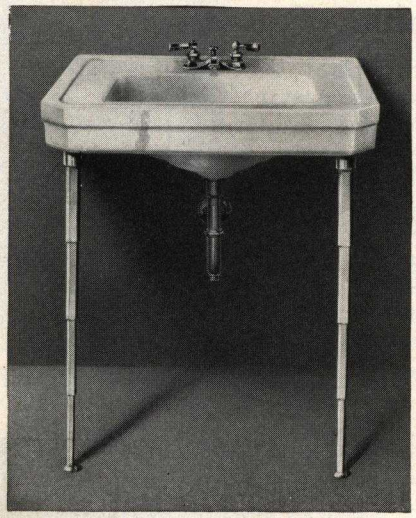


No. 520-68

UNIVERSAL SANITARY MFG. CO. NEW CASTLE, PA.

COLONIAL UNIT-CAST POTTERY

Vitreous China Sanitary Ware



No. 8056—Size 27 x 22 Inches

The CHELTON Chrome Leg Lavatory

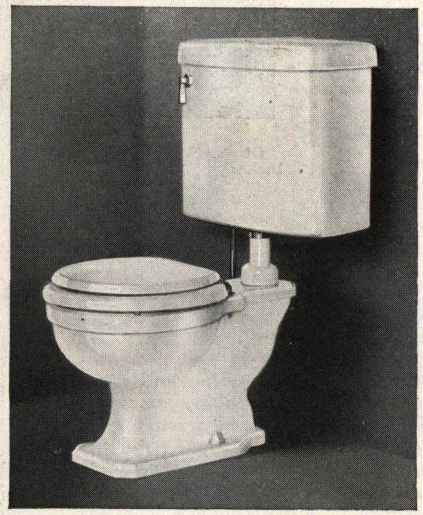
UNIVERSAL-COLONIAL flat top lavatory with square basin design, anti-splash rim and concealed front overflow; featuring two beveled chromium finished legs and unit supply and waste fitting. Wall brackets are chromium plated. Furnished also with chromium finished combination supply and waste fitting as No. 8054. Sizes 24-inch x 20-inch and 27-inch x 22-inch.



No. 2472—Regular Bowl—Shelf Top Tank

The CLINTON Reverse Trap Combination

UNIVERSAL-COLONIAL design is furnished with 14-inch rough regular bowl and 18-inch commercial standard tank. Regularly supplied with white vitreous enamel flush connection and chromium finished tank lever. Nickel or chromium plated flush connection and china lever are optional. Furnished also with elongated bowl for 14-inch rough as No. 2572; or with regular bowl for 12-inch rough.



No. 3294—Regular Bowl—Shelf Top Tank

The CRAWFORD Jet Combination

UNIVERSAL-COLONIAL design is furnished with 12-inch rough regular top supply bowl and 20-inch vitreous commercial standard tank. Regularly supplied with chromium plated straight flush connection, flange and side lever. Nickel plated or white vitreous enamel flush connection and china side lever are optional. Furnished also with 12-inch rough elongated bowl as No. 3394.



No. 8044—Size 24 x 20 Inches

The CARLTON Pedestal Lavatory

UNIVERSAL-COLONIAL flat top lavatory having square basin design, anti-splash rim and concealed front overflow. Supplied with chromium finished combination supply and waste fitting, or with unit supply and waste fittings as No. 8046. Wall brackets are chromium plated. Sizes 24-inch x 20-inch and 27-inch x 22-inch.

J. F. WEINHEIMER — BUFFALO, N. Y.

Office—308 Genesee Street

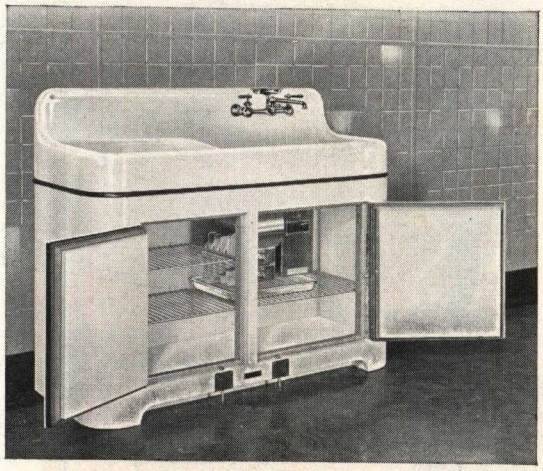
NATIONAL DISTRIBUTOR

COMBINATOR

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The Refrigerator-Sink

Write for Dealer Information



Model 57

The Combinator combines the standard kitchen sink and the electric refrigerator in a single convenient unit.

Many outstanding features of this unit are easily seen, such as, the saving of kitchen space, the saving of innumerable steps, the convenience of location, spacious capacity and beauty of interior, etc. Particular attention is called to door control latches. These are foot operated and the refrigerator can be opened with a flick of the foot.

The Combinator is available in sizes to fit Standard Sanitary Sinks. Sealed together the two become one handsome unit, hiding all unsightly plumbing, adding a note of distinctive beauty to the kitchen. The Combinator cabinet is extremely spacious and well built. Obtainable in colors to match Standard Sanitary sinks or to make a harmonious contrast. Moreover it is so designed as to house any of the prominently advertised refrigeration units on the market; Frigidaire, Kelvinator, Mayflower, etc. Your customer can decide which unit their Combinator shall contain.

The Combinator is available with right or left Drain Board Sinks and with storage capacities to meet the needs of every family.

Your inquiries are solicited.

Model 57 (Illustrated)

Model 57 Combinator is for use with P-6707—20x52 inch Standard Sanitary Sink, with left hand drain board.

Has a storage capacity of 8½ cubic feet and a shelf area of 12 square feet.

Especially adapted for single homes or large apartments.

When wanted with right hand drain board, specify M56 with P-6706 sink.

Model 47 (Not Illustrated)

Model 47 Combinator is for use with P-6707—20 x 42 inch Standard Sanitary Sink, with left hand drain board.

Has a storage capacity of 6½ cubic feet and a shelf area of over 9 square feet.

Designed for use in small homes and apartments.

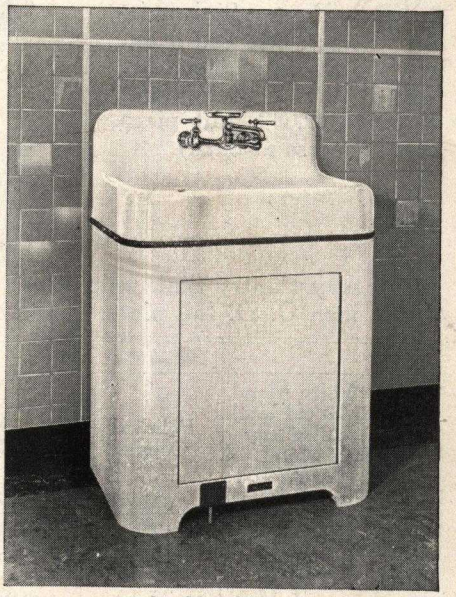
When wanted with right hand drain board, specify M46 with P-6707 sink.

Model 30 (Illustrated)

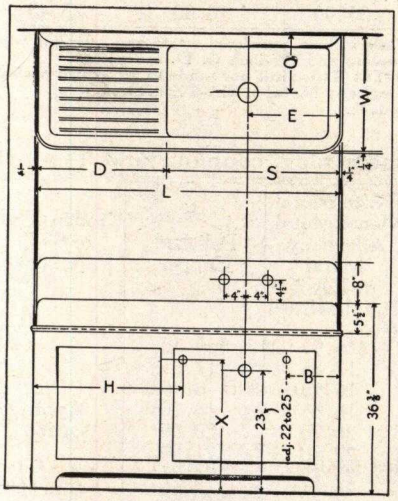
Model 30 Combinator is for use with P-6700—20 x 30 inch Standard Sanitary Sink.

This model has a storage capacity of 4½ cubic feet. It is ideal for small apartments, and is widely used where a multiple installation of cabinets on a single compressor is desired.

Note the toe space which allows complete comfort when standing at sink. This is sealed off to prevent dust accumulating under the refrigerator.



Model 30



Above Shows Left-hand Drain Board Sink
Reverse Dimensions for Right-hand

Installation

These simple instructions show the ease with which the Combinator is installed.

Place sink on top of Combinator cabinet. Insert rubber moulding between cabinet and sink. Insert tubing from the refrigerating compressor thru hole in rear of cabinet. Slide cabinet into position at proper waste and water openings using particular care not to disturb alignment of sink and cabinet. Remove trap case and connect waste and replace. Install sink faucet. Cement rubber moulding to sink only using Special Combinator Cement furnished with cabinet. If not handling mechanical refrigeration, your local dealer will install and service same.

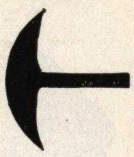


Illustration shows cross section of rubber moulding.

Cement in upper angle only.

Made in Five Models—3 Sizes

Model	Sink No.	Model	Sink No.	Nominal Size In.	Dimensions, Inches W	L	S	D	E	O	H	X	B
M 46	P 6706 R.H.	M 47	P 6707 R.H.	20x42	20	42	22	20	12	10	18½	24	
M 56	P 6706 R.H.	M 57	P 6707 L.H.	20x52	20	52	28	24	15	10	24	24	
M 30	P 6700			20x30	20	30	30		15	10		26	11

Fully covered by patents and patents pending in the United States of America and Foreign Countries

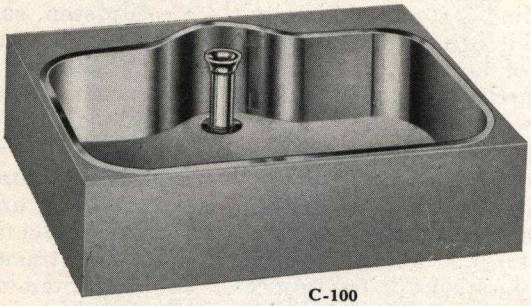
ELKAY MANUFACTURING CO. CHICAGO, ILL.

4704-4714 Arthington Street

Elkay Representatives
Los Angeles, Cal., W. J. Long, 2237 Rogers St.
Boston, Mass., Harry Adelson, 11 Beacon St.
New York, N. Y., Shwab Bros. Company, 510 E. 72nd St.
Grand Rapids, Mich., T. J. Hughes, 1125 Madison Ave.
Tampa, Fla., F. C. Jack, 5705 Taliaferro St.
Washington, D. C., R. H. Stacy, 1673 Columbia Road, N. W.

Elkay Representatives
Philadelphia, Pa., Caleb Cope, 3317 N. 18th St.
St. Louis, Mo., A. F. Becker, 455 Paul Brown Bldg.
Wilmington, N. C., J. O. Miller, 313 Church St.
Buffalo, N. Y., L. J. Drescher, 410 Lincoln Parkway.
Minneapolis, Minn., C. G. Herbert, 2400 S. 7th St.
Montreal, Que., Can., Emmans, Ltd., 1009 University Tower.

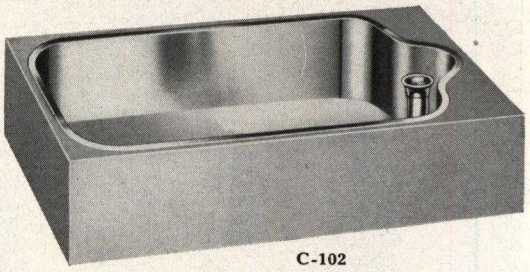
Elkay Pantry Sinks



C-100

C-100

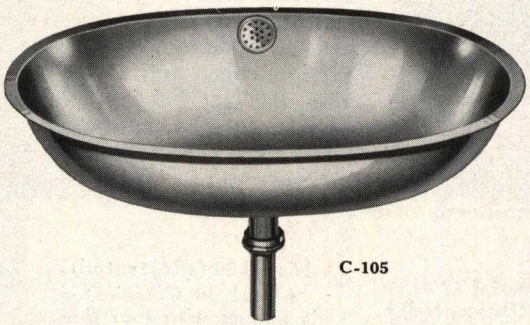
Elkay Pantry Sink unit, set in wood box and fitted with standing overflow, waste plug, coupling and 1½-inch O. D. tail piece (set in recess at back).



C-102

C-102

Elkay Pantry Sink unit, set in wood box and fitted with standing overflow, waste plug, coupling and 1½-inch O. D. tail piece (set in recess at end).



C-105

C-105

Elkay Pantry Sink unit, Oval pattern fitted with connected side overflow, waste plug, coupling and 1¼-inch O. D. tail piece. The bottom of sink is so formed that dishes cannot obstruct the waste outlet.

Size	C-100			C-102			C-105		
	White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	Polished Copper	Crodon Plate or 99% Pure Nickel	White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	Polished Copper	Crodon Plate or 99% Pure Nickel	White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	Polished Copper	Crodon Plate or 99% Pure Nickel
14x20	$25.10	$17.60	On Application	$25.10	$17.60	On Application	$23.60	$12.20	$15.25
14x24	27.25	19.40		27.25	19.40				
16x24	29.30	21.30		29.30	21.30		28.95	15.20	19.00
16x30	31.15	23.10		31.15	23.10				
18x30	33.00	24.90		33.00	24.90		35.00	18.80	23.45

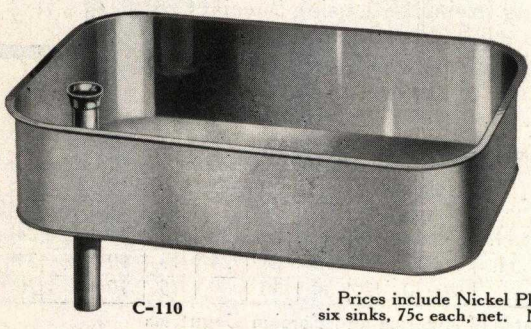
Prices include Nickel Plated standing overflow. (For list price on Crodon Plated overflow, see C-221.)

Prices include connected waste and overflow with coupling and 1¼-inch O. D. tail piece.
NOTE: This sink not made in 99% Pure Nickel, Allegheny Metal or KA-2 Stainless Steel.

Boxing less than six sinks, 75c each, net. No boxing charge on six or more. Shipping weight—maximum 50 pounds.

C-110

Elkay Pantry Sink unit, Square pattern, fitted with standing overflow, waste plug, coupling and 1½-inch O. D. tail piece.

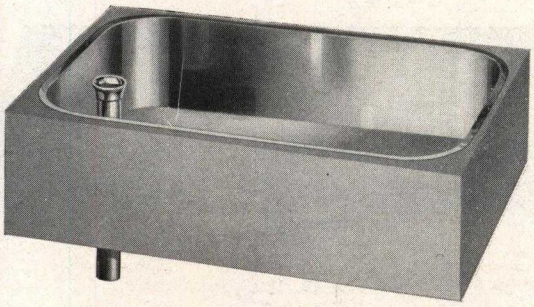


C-110

Size	White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	Polished Copper	Crodon Plate or 99% Pure Nickel
12x18	$16.95	$16.30	On Application
12x20	17.85	17.25	
14x16	16.95	16.30	
14x20	18.85	18.10	
14x24	20.70	20.00	
16x24	22.40	21.50	
16x30	25.20	24.25	
18x30	27.25	26.20	

Prices include Nickel Plated standing overflow. (For list price on Crodon Plated overflow, see C-221). Boxing less than six sinks, 75c each, net. No boxing charge on six or more. Shipping weight—maximum 50 pounds.

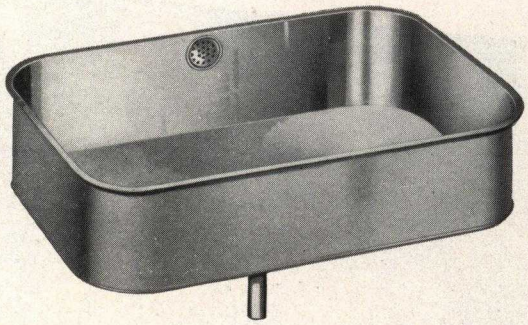
Elkay Pantry Sinks



C-112

C-112

Elkay Pantry Sink unit, Square pattern, set in wood box and fitted with standing overflow, waste plug, coupling and 1½-inch O. D. tail piece.



C-115

C-115

Elkay Pantry Sink unit, Square pattern, fitted with connected overflow, waste plug, coupling and 1¼-inch O. D. tail piece. (Can also be furnished with overflow at end.)



C-117

C-117

Elkay Pantry Sink unit, Square pattern, set in wood box and fitted with connected overflow, waste plug, coupling and 1¼ inch O. D. tail piece. (Can also be furnished with overflow at end.)

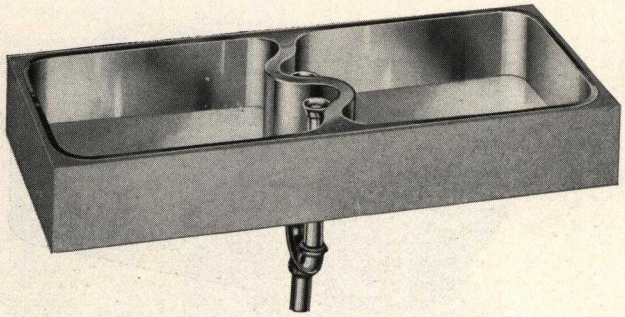
Size	C-112			C-115			C-117		
	White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	Polished Copper	Crodon Plate or 99% Pure Nickel	White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	Polished Copper	Crodon Plate or 99% Pure Nickel	White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	Polished Copper	Crodon Plate or 99% Pure Nickel
12x18	$22.30	$21.55		$18.10	$17.45		$23.55	$22.85	
12x20	23.60	22.75		19.15	18.45		24.85	24.10	
14x16	22.30	21.55	On	18.10	17.45	On	23.55	22.85	On
14x20	24.85	23.95	Appli-	20.15	19.40	Appli-	26.20	25.40	Appli-
14x24	27.25	26.25	cation	22.10	21.20	cation	28.65	27.80	cation
16x24	29.65	28.60		24.00	23.00		31.20	30.25	
16x30	32.20	31.20		26.60	25.55		33.95	33.00	
18x30	34.90	33.80		29.10	28.10		36.80	35.70	

Prices include Nickel Plated standing overflow. (For list price on Crodon Plated overflow, see C-221.)

Prices include connected waste and overflow with coupling and 1¼-inch O. D. tail piece.

Boxing less than six sinks, 75c each, net. No boxing charge on six or more. Shipping weight—maximum 50 pounds.

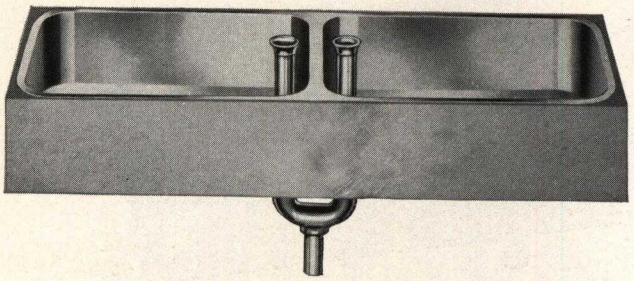
Elkay Pantry Sinks and Drainboard



C-120

C-120

Elkay Pantry Sink unit, Double pattern, set in wood box and fitted with "S" dividing partition, two standing overflows, waste plugs, couplings and 1½-inch O. D. tail pieces; also one twin waste connection for 1½-inch trap.



C-125

C-125

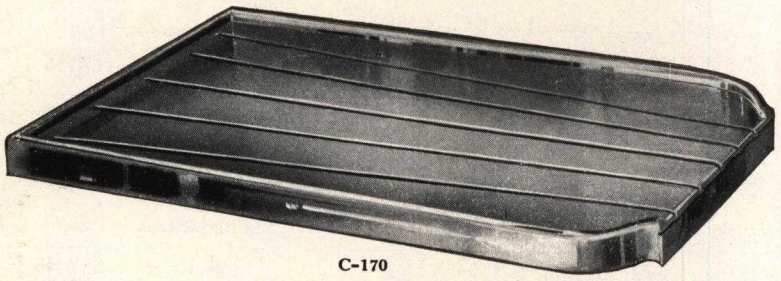
Elkay Pantry Sink unit, Double pattern, set in wood box and fitted with "straight" dividing partition, two standing overflows, waste plugs, couplings and 1½-inch O. D. tail pieces; also one twin waste connection for 1½-inch trap.

Size	C-120			C-125		
	White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	Polished Copper	Crodon Plate or 99% Pure Nickel	White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	Polished Copper	Crodon Plate or 99% Pure Nickel
12x36	$55.80	$52.65		$53.95	$50.80	
12x40	59.10	56.00		57.25	54.15	
14x30	52.50	49.35		50.60	47.45	
14x32	54.15	51.00		52.30	49.15	
14x36	57.50	54.35		55.60	52.45	
14x40	60.80	57.65		58.95	55.80	
14x48	67.50	64.35		65.60	62.45	
16x40	62.50	59.35	On	60.60	57.45	On
16x44	65.80	62.65	Appli-	63.95	60.80	Appli-
16x48	69.15	66.00	cation	67.25	64.15	cation
18x40	64.15	61.00		62.25	59.15	
18x48	70.80	67.65		68.95	65.80	
18x54	75.80	72.65		73.95	70.80	
18x60	80.80	77.65		78.95	75.80	
20x48	72.50	69.35		70.60	67.45	
20x54	77.50	74.35		75.60	72.45	
20x60	82.50	79.35		80.60	77.45	

Prices include two Nickel Plated standing overflows and one Nickel Plated, twin waste connection. (For list price on Crodon Plated fittings, see C-221 and C-223.) Shipping weight—maximum 75 pounds.

C-170

Elkay Drainboard with raised edge on front, back and end, and grooved top. All metal clad, including underside. Can be used either side of sink.



C-170

Size	White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	Polished Copper	Crodon Plate or 99% Pure Nickel	Size	White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	Polished Copper	Crodon Plate or 99% Pure Nickel
18x18	$62.60	$59.50	On	18x24	$67.10	$64.00	On
20x18	64.10	61.00	Appli-	20x24	68.60	65.50	Appli-
18x20	64.10	61.00	cation	22x24	70.10	67.00	cation

Drainboards as shown. No fittings included. Prices on fittings furnished on application. Shipping weight—maximum 65 pounds.

Elkay Pantry Sinks

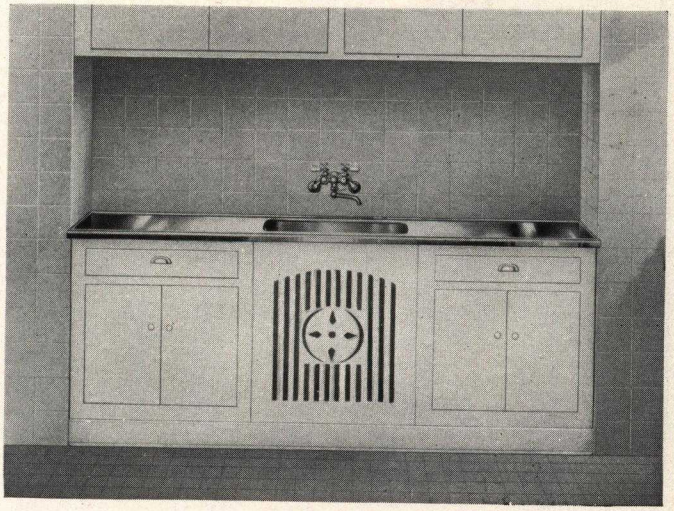
C-132

Recess Type

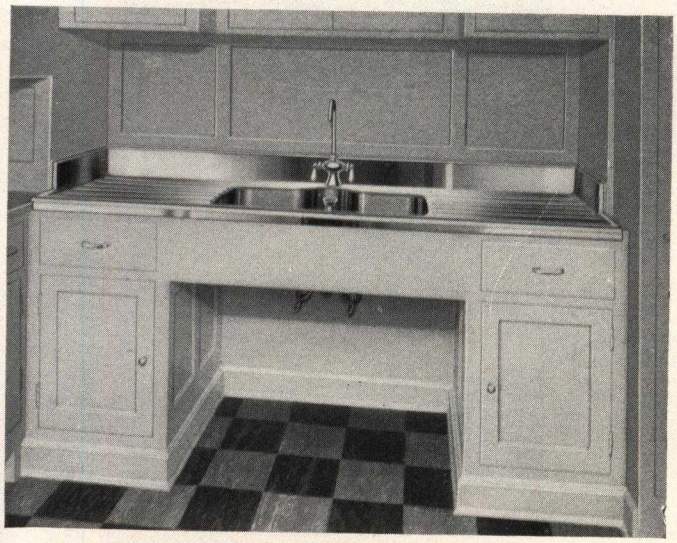
Elkay Pantry Sink, Double Drainboard pattern, built integral with single compartment unit, flat top (no grooves); all metal clad. Especially adapted for use with kitchen cabinets.

48 Inches Long	List
White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	$105.00
Additional per each lineal foot	14.35
Crodon Plate or 99% Pure Nickel	On Application
Additional per each lineal foot	On Application

Fixture as shown, including Crodon Plated strainer. No trap or supply fixture included in price.
Shipping weight—50 pounds per lineal foot.



C-132



C-134

C-134

Recess Type

Elkay Pantry Sink, Double Drainboard pattern, built integral with single compartment unit, grooved top, back and partial return ends; all metal clad.

48 Inches Long	List
White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	$129.75
Additional per each lineal foot	16.65
Crodon Plate or 99% Pure Nickel	On Application
Additional per each lineal foot	On Application

Fixture as shown, including one Nickel Plated standing overflow. No trap or supply fixture included in price. Box back providing concealed pipe chamber optional at no extra cost.
Shipping weight—50 pounds per lineal foot.

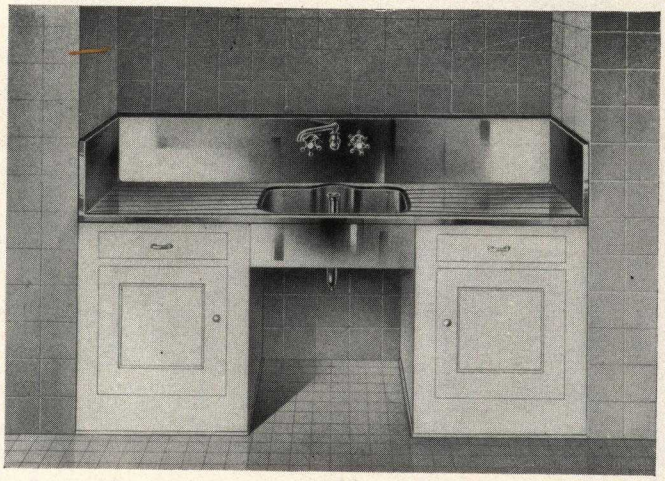
C-142

Recess Type

Elkay Pantry Sink, Double Drainboard pattern, built integral with single compartment unit, grooved top, back, return ends and partial apron; all metal clad.

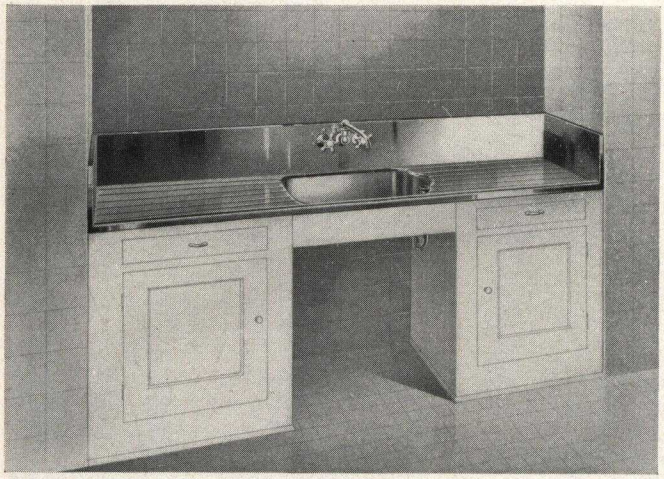
48 Inches Long	List
White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	$145.10
Additional per each lineal foot	17.90
Crodon Plate or 99% Pure Nickel	On Application
Additional per each lineal foot	On Application

Fixture as shown, including one Nickel Plated standing overflow. No trap or supply fixture included in price. Boxed back providing concealed pipe chamber optional at no extra cost.
Shipping weight—50 pounds per lineal foot.



C-142

Elkay Flower and Pantry Sinks



C-144

C-144

Recess Type

Elkay Pantry Sink, Double Drainboard pattern, built integral with single compartment unit, grooved top, back and return ends; all metal clad.

48 Inches Long	List
White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	$141.65
Additional per each lineal foot	17.90
Crodon Plate or 99% Pure Nickel	On Application
Additional per each lineal foot	On Application

Fixture as shown, including one Nickel Plated standing overflow. No trap or supply fixture included in price. Boxed back providing concealed pipe chamber optional at no extra cost.

Shipping weight—50 pounds per lineal foot.

C-147

Elkay Flower Sink, fitted with extra deep single compartment, to permit filling tall vases, and high standing overflow having bee-hive top; also extra wide ledge at rear, back, apron and return end aprons; all metal clad.

36 Inches Long	List
White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	$156.90
Additional per each lineal foot	29.35
Crodon Plate or 99% Pure Nickel	On Application
Additional per each lineal foot	On Application

Flower sink of dimension shown, including two Nickel Plated legs with ball feet and Nickel Plated standing overflow with bee-hive top. No trap or supply fixture included in price.

Shipping weight—50 pounds per lineal foot.



C-147



C-149

C-149

Recess Type

Elkay Pantry Sink, Double Drainboard pattern, built integral with double compartment unit, grooved top, back, return ends, and apron; all metal clad.

78 Inches Long	List
White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	$229.75
Additional per each lineal foot	22.75
Crodon Plate or 99% Pure Nickel	On Application
Additional per each lineal foot	On Application

Fixture as shown, including two Nickel Plated standing overflows and one Nickel Plated twin connection. No trap or supply fixture included in price. Boxed back providing concealed pipe chamber optional at no extra cost.

Shipping weight—50 pounds per lineal foot.

Elkay Pantry Sinks



C-156

C-156
Recess Type

Elkay Pantry Sink, Double Drainboard pattern, built integral with double compartment unit, grooved top, back, return ends and partial apron; all metal clad.

78 Inches Long	List
White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	$215.35
Additional per each lineal foot	17.90
Crodon Plate or 99% Pure Nickel	On Application
Additional per each lineal foot	On Application

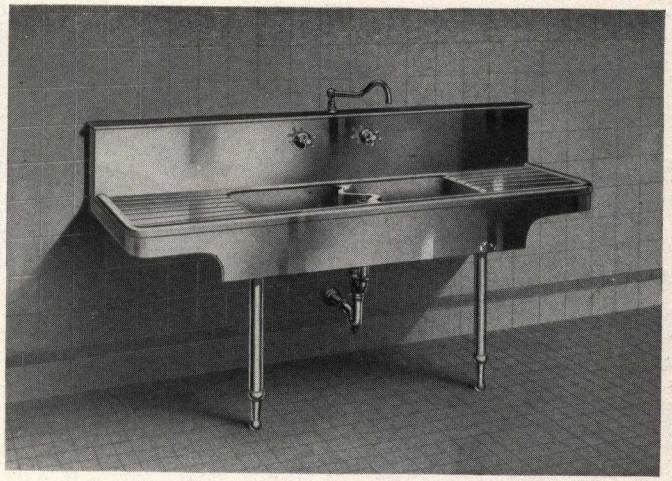
Fixture as shown, including Two Nickel Plated standing overflows and one Nickel Plated twin connection. No trap or supply fixture included in price. Boxed back providing concealed pipe chamber optional at no extra cost.
Shipping weight—50 pounds per lineal foot.

C-165
Free End Type

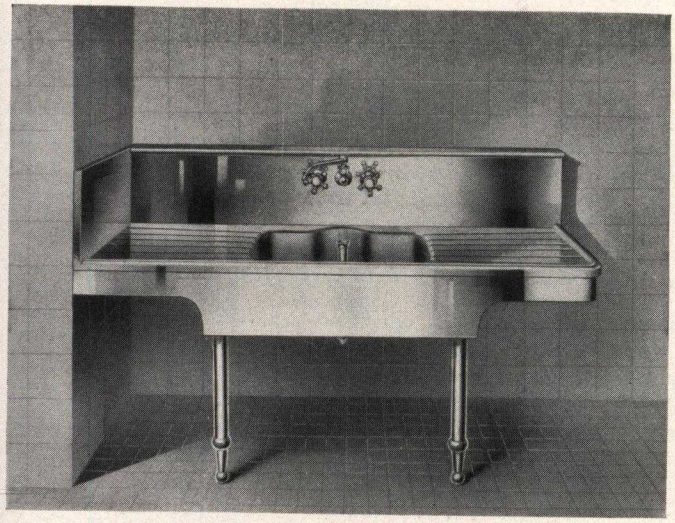
Elkay Pantry Sink, Double Drainboard pattern, built integral with double compartment unit, grooved top, back, apron in front and return ends; all metal clad.

78 Inches Long	List
White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	$328.65
Additional per each lineal foot	25.40
Crodon Plate or 99% Pure Nickel	On Application
Additional per each lineal foot	On Application

Fixture as shown, including Crodon Plated overflows, twin connection, 2-inch trap, legs and supply fixture.
Shipping weight—50 pounds per lineal foot.



C-165



C-166

C-166
Corner Type

Elkay Pantry Sink, Double Drainboard pattern, built integral with single compartment unit, grooved top, back and return end, also apron in front and return end, all metal clad.

78 Inches Long	List
White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	$251.10
Additional per each lineal foot	22.90
Crodon Plate or 99% Pure Nickel	On Application
Additional per each lineal foot	On Application

Fixture as shown, including Nickel Plated standing overflow and two Nickel Plated legs with ball feet. No trap or supply fixture included in price.
Shipping weight—50 pounds per lineal foot.

Elkay Pantry Sinks and Bar Sink



C-167

C-167
Free End Type

Elkay Pantry Sink, Double Drainboard pattern, built integral with double compartment unit, grooved top and back; all metal clad. Also Oak or Ash apron front and return ends.

78 Inches Long	List
White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	$235.10
Additional per each lineal foot	19.25
Crodon Plate or 99% Pure Nickel	On Application
Additional per each lineal foot	On Application

Fixture as shown, including two Nickel Plated standing overflows, two Nickel Plated apron supports, one Nickel Plated twin connection and two Nickel Plated offset legs. No trap or supply fixture included in price. Boxed back providing concealed pipe chamber optional at no extra cost.

Shipping weight—50 pounds per lineal foot.

C-168
Free End Type

Elkay Pantry Sink, Double Drainboard pattern, built integral with double compartment unit, grooved top, back, apron and return ends; all metal clad.

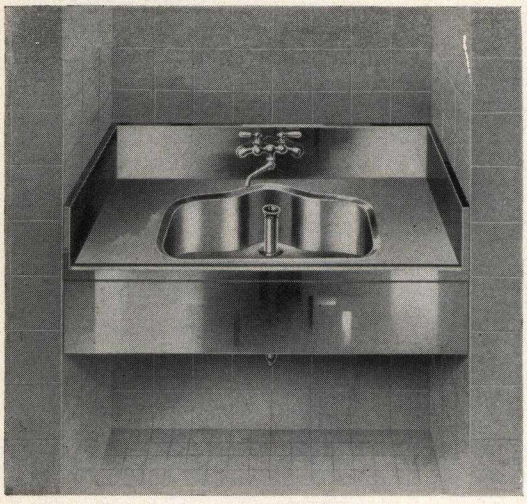
78 Inches Long	List
White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	$252.15
Additional per each lineal foot	21.65
Crodon Plate or 99% Pure Nickel	On Application
Additional per each lineal foot	On Application

Fixture as shown, including two Nickel Plated standing overflows, two Nickel Plated apron supports, one Nickel Plated twin connection and two Nickel Plated offset legs. No trap or supply fixture included in price. Boxed back providing concealed pipe chamber optional at no extra cost.

Shipping weight—50 pounds per lineal foot.



C-168



C-169

C-169

Elkay Bar Sink, Double Drainboard pattern, built integral with single compartment unit, flat top (not grooved), back and return ends, also apron in front; all metal clad.

36 Inches Long	List
White Metal, Monel Metal, Allegheny Metal or KA-2 Stainless Steel	$116.60
Additional per each lineal foot	18.00
Crodon Plate or 99% Pure Nickel	On Application
Additional per each lineal foot	On Application

Bar Sink as shown, including one Nickel Plated standing overflow. No trap or supply fixture included in price. Boxed back providing concealed pipe chamber optional at no extra cost.

Shipping weight—50 pounds per lineal foot.

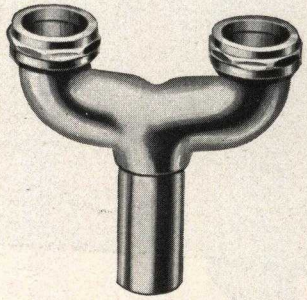
Elkay Pantry Sink Accessories


C-185


C-222


C-222½


C-221


C-223

C-185

Offset Tube Leg with flange on bottom and corner piece at top for attaching to apron.

C-222

Straight Tube Leg with flanges at both ends.

C-222½

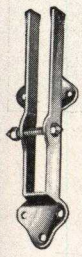
Straight Tube Leg with ball foot.

C-221

Standing Overflow Waste Plug. Furnished with coupling and 1½-inch tail piece. Has bell mouth inlet.

C-223

Twin Waste Connection. Furnished complete with slip nuts and 1½-inch tail piece.


C-210

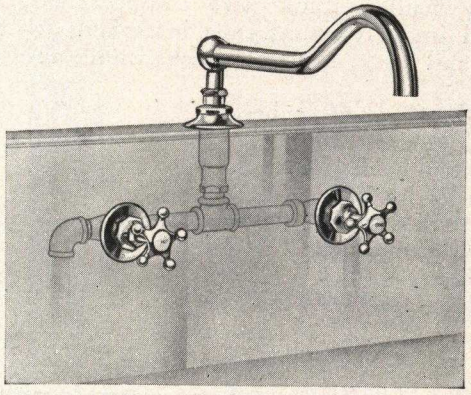
C-210

Apron Support. Strong and sturdy. Bolt furnished with each support.


C-200

C-200

Wall Bracket. Size 16x18 inches. Very strongly made. Has tube brace.


C-225

C-225

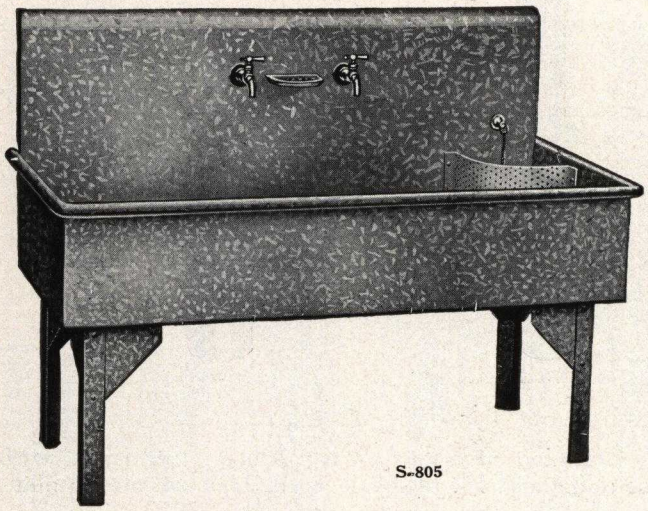
Supply fixture with swinging spout.
Furnished complete with brass escutcheons, and china indexed five-ball handles.

Fittings

Plate No.	Description	List Nickel Plate	List Crodon Plate
C-185	Offset Leg ..... Each	$11.25	$15.00
C-200	Bracket ..... Each	6.90	8.25
C-210	Apron Support ..... Each	1.75	2.50
C-221	Standing Overflow ..... Each	3.40	4.20
C-222	Straight Leg (Flat Flange) ..... Each	8.75	10.00
C-222½	Straight Leg (Ball Flange) ..... Each	8.75	10.00
C-223	Twin Connection ..... Each	3.50	4.00
.....	Twin Connection, with 2-inch Tail Piece ..... Each	5.15	6.50
C-225	Supply Fixture ..... Each	(Not furnished)	24.10
.....	"P" Trap—2-inch ..... Each	9.40	11.15
.....	Standing Overflow with Beehive Strainer ..... Each	5.00	6.25
.....	Hand Operated Duo Strainer ..... Each	(Not furnished)	9.70

NOTE:—The above accessories are not made in White Metal, Monel Metal, Polished Copper, 99% Pure Nickel, Allegheny Metal or KA-2 Stainless Steel.

Elkay Scullery Sinks



S-805

S-805

Elkay Scullery Sink, one compartment, with roll rim on front and ends and with 15-inch high integral back, legs and soap dish; also perforated corner strainer guard.

For overall dimensions add 2½ inches to length and 3 inches to width.

Special sizes made to order.

S-805

Length Inches	Width Inches	Depth Inches	Back Inches
30	24	12	15
36	24	12	15
42	24	12	15
48	24	12	15
54	24	12	15
60	24	12	15

Government Type Sink 60 DB

Outfit 17

Elkay Scullery Sink, two compartment, with roll rim on front and ends, integral drainboards and back, also soap dish, frame and legs.

Length of sink 60 inches.

Depth of sink 12 inches.

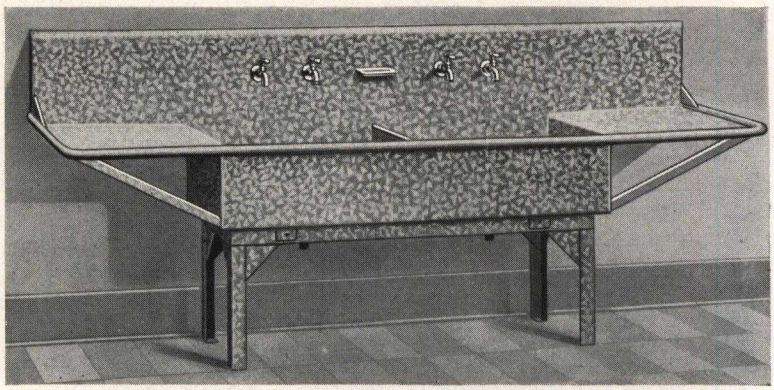
Height of back 15 inches.

Floor to rim 32 inches.

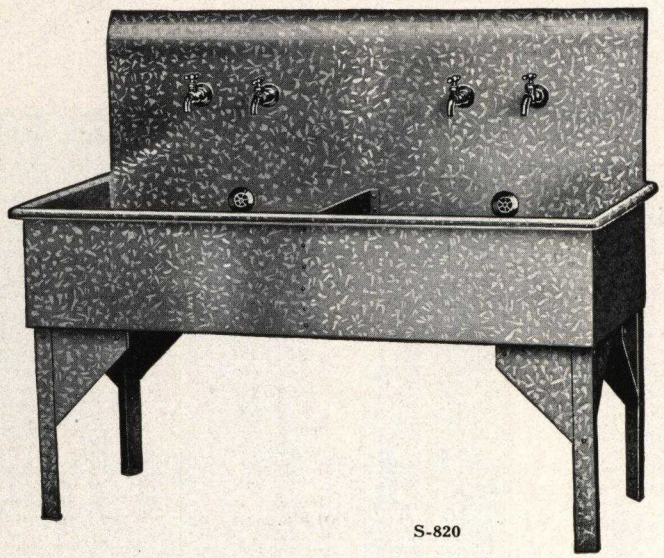
Length of drainboards, each 24 inches.

Overall dimensions 2 ft. 3 in. x 9 ft. x 3 ft. 11 in. high.

Special Sizes Made to Order.



60-DB



S-820

S-820

Elkay Scullery Sink, two compartment, with roll rim on front and ends and with 15-inch high integral back, with legs and soap dish.

S-820

Length Inches	Width Inches	Depth Inches	Back Inches
30	24	12	15
36	24	12	15
42	24	12	15
48	24	12	15
54	24	12	15
60	24	12	15

Measurements are inside and do not include roll rim or boxed back.

For overall dimensions add 2½ inches to length and 3 inches to width.

Special Sizes Made to Order.

NOTE:—The above sinks and drainboards can also be manufactured of Monel Metal, Allegheny Metal or KA-2 Stainless Steel.

Elkay Unit Shower Stall

(Pat. April 15, 1919)

Strong—sanitary—pleasing appearance. The full round beaded edge of pilasters and riser are exclusively Elkay Features.

Specifications

Construction

Made of No. 11 Gauge (1/8-inch thick) open hearth copper bearing sheet steel. Pilasters, sides and back are made of one continuous sheet, to which riser and receptor are welded, making a complete, integral, leak-proof fixture, absolutely watertight.

Bottom

Inverted type electrically welded to sides, permitting stall to set on finished floor (no grotting of floor necessary).

ELKAY FEATURES

Integral leak-proof brass drain connection for caulking, electrically welded to bottom of stall, with brass strainer grate.

Flush type curtain rod flanges with 3/4-inch O. D. curtain rod. (Note: No protruding bolt heads on outside of stall.)

"The Aristocrat"

Specifications

Complete compartment includes: Elkay mixing valve, nickel plated 4-inch diameter adjustable ball joint cast brass shower head and arm, 3/4-inch O. D. nickel plated brass curtain rod with flush type flanges, 2-foot 10-inch by 5-foot 10-inch Elkay shower curtain with nickel plated curtain hooks, nickel plated strainer and brass welded leak-proof drain connection.

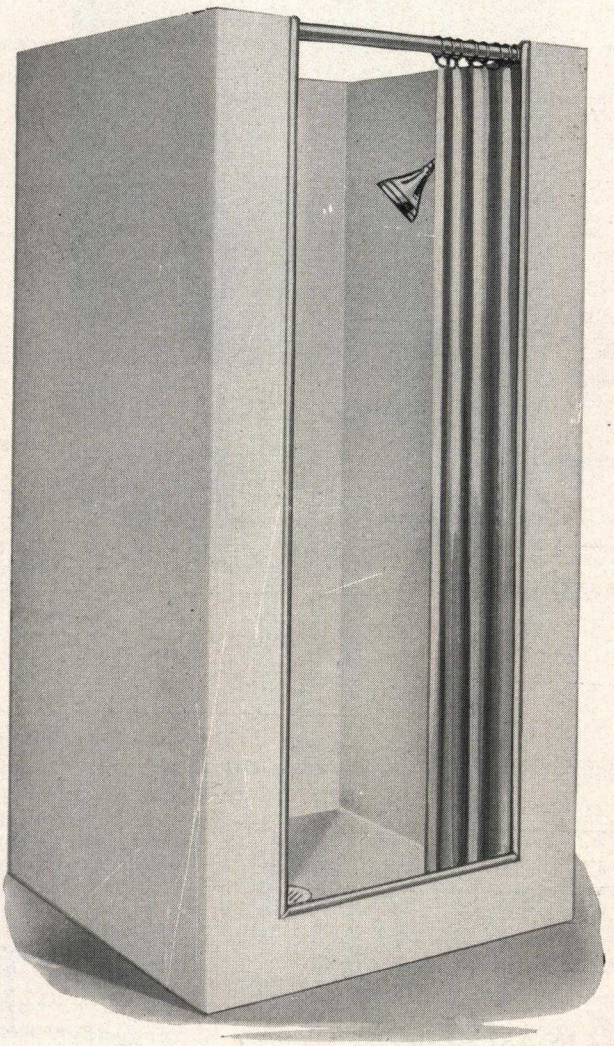
Plate No.	W* In.	D* In.	H* In.	List Price	Weight Pounds
28AN	28	40	72	$87.35	445
30AN	30	32	72	84.35	395
32AN	32	32	72	84.35	420
36AN	36	36	72	87.35	445
40AN	40	28	72	87.35	445

Same as above except with all exposed brass accessories chromium plated.

Plate No.	W* In.	D* In.	H* In.	List Price	Weight Pounds
28AC	28	40	72	$93.25	445
30AC	30	32	72	90.25	395
32AC	32	32	72	90.25	420
36AC	36	36	72	93.25	445
40AC	40	28	72	93.25	445

Legend: *W—Width; D—Depth; H—Height.

Note—Door openings in width unless otherwise specified.



"The Commodore"

Specifications

Standard equipment includes all necessary valve or mixer drillings, 3/4-inch O. D. nickel plated brass curtain rod with flush type flanges, nickel plated strainer and brass welded leak-proof drain connection.

Plate No.	W* In.	D* In.	H* In.	List Price	Weight Pounds
28CN	28	40	72	$75.00	425
30CN	30	32	72	72.00	375
32CN	32	32	72	72.00	400
36CN	36	36	72	75.00	425
40CN	40	28	72	75.00	425

Same as above except with all exposed brass accessories chromium plated.

Plate No.	W* In.	D* In.	H* In.	List Price	Weight Pounds
28CC	28	40	72	$78.50	425
30CC	30	32	72	75.50	375
32CC	32	32	72	75.50	400
36CC	36	36	72	78.50	425
40CC	40	28	72	78.50	425

Legend: *W—Width; D—Depth; H—Height.

Note—Door openings in width unless otherwise specified.

Extra Equipment

White duck shower curtain, 8-ounce double filled, custom tailored, size 2 feet 10 inches by 5 feet 10 inches with N. P. Hooks (colored shower curtain can be furnished at same price)	$ 2.60
Same as above with C. P. hooks	3.05
Drilling waste outlet off center	7.80
Compartment with two entrances	7.50
Filler plates under 2 inches—No Charge. Over 2 inches	4.00
Elkay mixing valve N. P. with N. P. shower head and arm	9.75
Elkay mixing valve C. P. with C. P. shower head and arm	11.70
Shower stall 7 feet 0 inches high	8.50

Cabinets of standard size, with opening on corner, shall be priced as standard cabinet of like size.

Roughing-in Measurements for "The Aristocrat"

Distance from front of stall to center of mixing valve drilling.....7 inches

Distance from floor to center of mixing valve drilling.....4 feet, 6 inches

Distance from floor to center of shower arm drilling.....5 feet, 10 inches

Note—In determining the size of the stall, it is important to consider all passageways, doors and halls. All Elkay Shower Stalls are given two coats of metal primer. In finishing and decorating after erection, a good grade of waterproof enamel paint should be used.

Terms—2 per cent 10 days, 30 days net, F. O. B. Chicago. Will equalize freight from Joliet, Ill.; Milwaukee, Wis., and Elkhart, Ind. Prices subject to change without notice.

When ordering specify size desired, location of shower drilling and whether compartment will set in right hand or left hand corner.

Established 1850

JOHN TRAGESER STEAM COPPER WORKS

Grand Avenue, Maspeth, L. I., New York

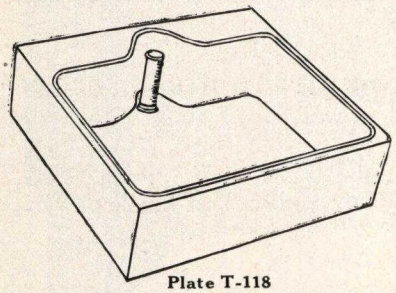


Plate T-118

Trageser Pantry Sinks

White Metal or Monel
Wood Encased Sinks
With Recessed
Standing Waste

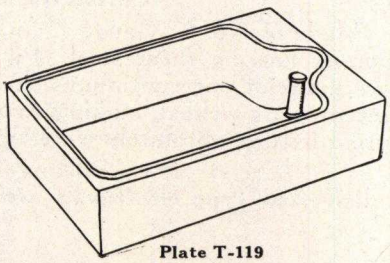


Plate T-119

Plate T-118 shows single sink with recess and standing waste at back.

Length, Inches	Width, Inches	Inside Depth, Inches	White Metal	Planished or Tinned Copper
20	14	6	$31.50	$16.00
24	14	6	34.00	18.00
24	16	6	36.50	19.30
30	16	6	39.50	21.40
30	18	6	41.50	22.50

Measurements do not include recess.

Plate T-119 has recess and standing waste at end.

Length, Inches	Width, Inches	Inside Depth, Inches	White Metal	Planished or Tinned Copper
20	14	6	$30.50	$14.50
24	14	6	33.00	16.20
24	16	6	35.50	17.30
30	16	6	38.50	19.40
30	18	6	40.50	20.50
36	20	6	46.50	24.00

Measurements do not include recess.

Partition Sinks

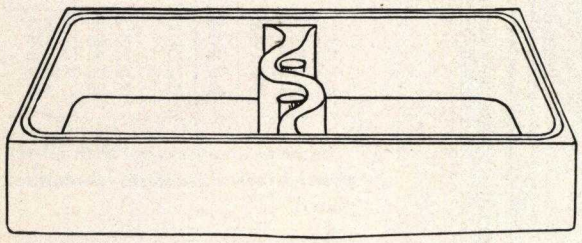


Plate T-116

Plate T-116 shows a double sink with the "S" type dividing partition.

Length, Inches	Width, Inches	Inside Depth, Inches	White Metal	Planished or Tinned Copper
40	18	6	$67.00	$42.00
44	22	6	72.00	44.00
48	16	6	77.00	46.00
48	24	6	81.00	48.00

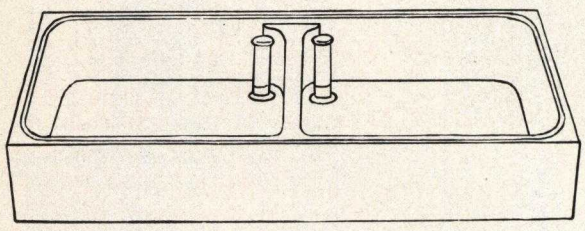


Plate T-117

Plate T-117 shows a double sink with the straight type dividing partition.

Length, Inches	Width, Inches	Inside Depth, Inches	White Metal	Planished or Tinned Copper
40	18	6	$60.00	$36.00
44	22	6	65.00	38.00
48	16	6	70.00	38.00
48	24	6	75.00	40.00

Piscina White Metal Sink

The Piscina Sink, as shown by Plate T-125, is a very special fixture intended only for the washing of sacred vessels. The corner type shown is made in combination with a wash basin having a supply fitting for hot and cold water with open strainer and trap to wall. As the Piscina itself is never connected to the sewer system the basin is not provided with a trap, but is made with a straight waste pipe connected to a pit below which is filled with clean sand and stones.

Size 42x20 inches with 8-inch back.

List Price $250.00

All fittings including lock and keys.

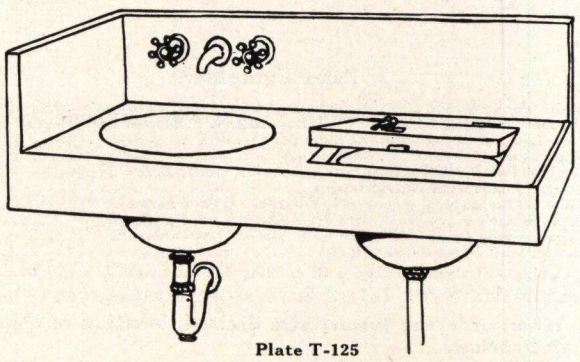


Plate T-125

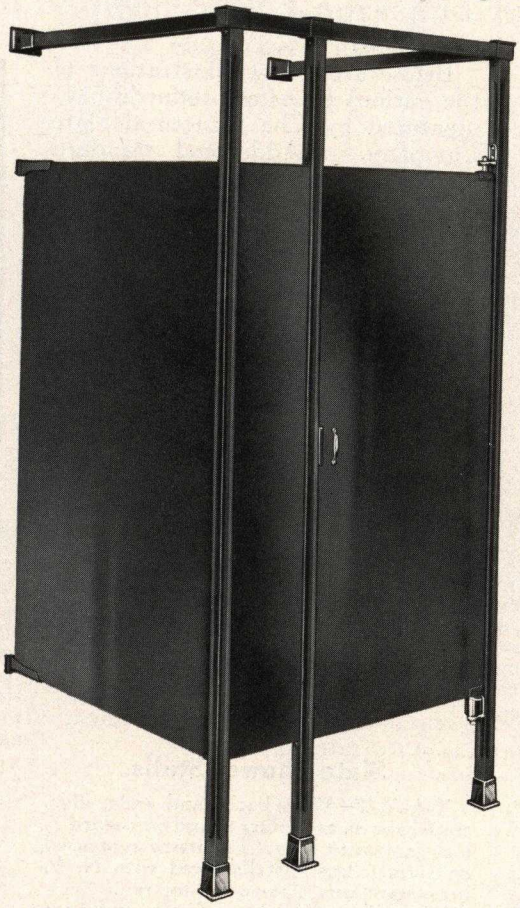
THE HART & HUTCHINSON COMPANY

NEW BRITAIN, CONNECTICUT

BRANCH OFFICES

NEW YORK: 101 Park Ave. PHILADELPHIA: Architects Bldg. BOSTON: 75 Portland Street

Steel Partitions
For Toilet Stalls—Showers and Dressing Compartments



Type T-9

Made of galvanized steel throughout with lacquer enamel finishes, solid brass hardware.

Type T-12

Made of plain steel (not galvanized) lacquer enameled, solid brass hardware.

Type T-9 is for conditions such as showers, dressing rooms or conditions where rust prevention is necessary. This type is made entirely of galvanized steel. All partitions and doors are of 22 gauge galvanized sheets cemented to a fiber core with all edges reinforced and soldered. Tubular members and fittings are sherardized, and all work is highly finished in the finest of lacquer enamels. Standard colors are green and gray. All partitions and doors are ¾" thick, are flush type and sound deadened. Posts and headrail tubing is 1½" square. Hardware is solid brass, chromium plated, including a ball bearing gravity hinge. Erection of these partitions is very simple and requires a minimum of labor.

Type T-12 is for ordinary conditions where rusting of partitions is not considered the important factor for selection. This is a construction of lower costs, the savings being derived through the use of plain furniture steel (not galvanized) and by a special method of lock seaming the edges of partitions and doors. Steel sheets are cemented to a fiber core in the same manner as for T-9. Finishes are of highest quality lacquer enamels. Hardware is nickel plated, or can be chromium plated at slightly higher cost. Adjustable attachments are provided at all points of contact with walls and floor: very easily erected.

Standard Sizes for Both Types T-9 and T-12

Partitions and Panels:
Heights—54-inch, 60-inch, 66-inch and 72-inch.
Widths—6-inch to 60-inch, incl., by 6-inch intervals.

Doors:
Heights—54-inch, 60-inch, 66-inch and 72-inch.
Widths—18-inch to 34-inch, incl., by 2-inch intervals.

Heights given are partition and door heights. Standard distance off floor is 12″ and space from partition to head rail 12″.

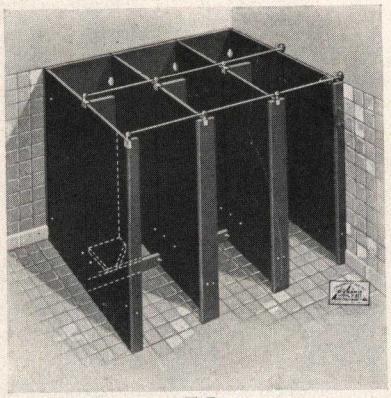
Ten years of partition manufacturing guarantees satisfaction to you

THE STRUCTURAL SLATE CO. PEN ARGYL, PA.

"CENTURIES OF SERVICE"
PYRAMID NATURAL SLATE STRUCTURAL
Proof against Time - Wear - Water - Fire!

Pyramid Brand Slate

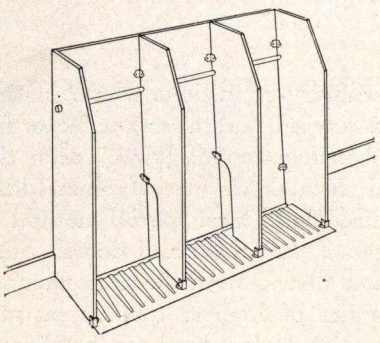
Below are a few illustrations of the various types of products manufactured by The Structural Slate Company. Additional standard types and any special type can be readily manufactured and supplied. Requests for prices and additional information will be given careful and prompt attention.



T-D

Slate Shower Stalls with Dressing Rooms

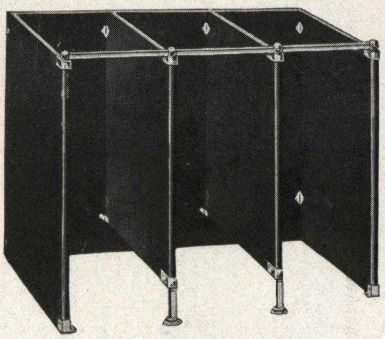
T-D-Shower bath stalls illustrated above with dressing rooms have all slabs extending to and embedded 1 inch in cement floor if Slate Floors are not furnished. Stalls fitted with heavy N. P. brass clamps and front top rail. Slate backs, ends and partitions 1-inch thick, stiles 1¼ inches and seats 1¼ inches. Dimensions on application.



T-B

Slate Urinal Stalls

T-B Slate backs, ends and partitions illustrated above are continuous to top of floor slab and gutter, the inner portion of the partitions being cut out to height of 18 inches. Backs slope ½-inch to each 1-foot in height and rest on top edge of slate gutter. Slate floor slab is 1½ inches thick, grooved and drained to gutter. Finished height from top of floor slab to top of backs, ends and partitions is 4 feet 6 inches.

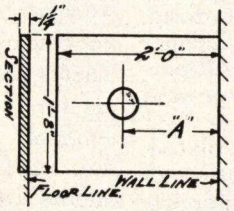


T-A-ALT—Less Floor Slab

Slate Shower Stalls

T-A-ALT—With backs and ends, illustrated above, extending to and embedded 1-inch in cement floor. Partitions supported on 12-inch legs. Stalls fitted with N. P. brass standards, clamps and top rail.

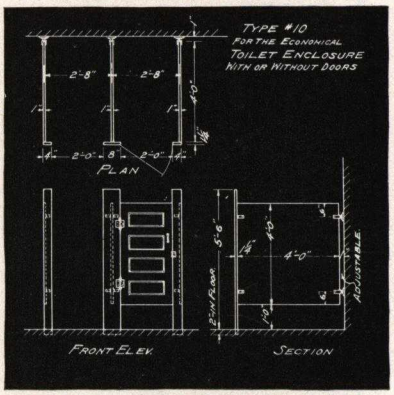
Dimensions—Height of backs and ends above floor 6 feet 6 inches. Height of partitions 5 feet 6 inches. Height of standards, 1-foot. Stalls, 3x3 feet. Thickness of all slabs, 1-inch.



Plain floor slab for water closet. Hole cut for waste pipe. Can be furnished to fit contour of bowl. Also with beveled edges or cut special.

Standard Sizes

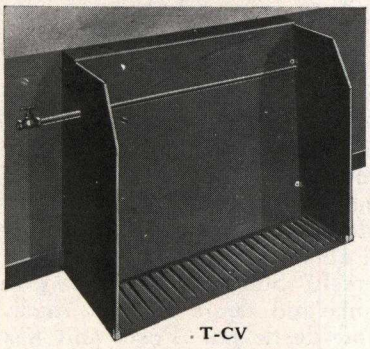
10 x 20 inches — 12 x 18 inches
12 x 20 inches — 12 x 22 inches
12 x 24 inches — 20 x 24 inches
22 x 24 inches — 24 x 24 inches



No. 10—Toilet Enclosure

Slate Toilet Enclosures

No. 10 Toilet Enclosure illustrated above is a new creation for the economical job. Partitions are attached to the wall with a new design of wall bracket, which is adjustable to take care of the irregularities in the wall, thereby reducing the cost of installation. The print above, while indicating stiles running 6 inches above the partition to provide a higher door, represent an alternate type, since they are also furnished without this extra 6 inches making a very trim installation with all lines even at the top.



T-CV

Slate Urinal Stall

T-CV Backs and ends illustrated above are continuous to top of floor slab and gutter. No partitions. Splash slab at bottom of vent space. Slate gutter cut from solid piece and drained to outlet. Reversible perforated flushing pipe, clamps, cap, loose-key stopcock and strainer for gutter outlet will be of brass N. P.

Dimensions—Height 4 feet 6 inches. Depth 2 feet 2 inches from face of wall to front edge of ends. T-C-Same as T-CV, except that it has no vent space.

G. M. KETCHAM MFG. CORP. BROOKLYN, N. Y.

81 Washington Street

Branch Offices

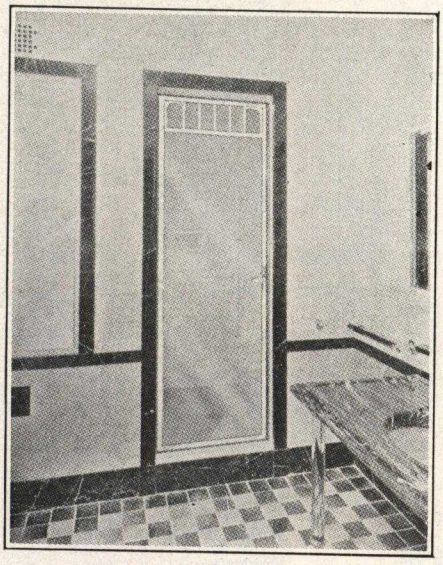
Philadelphia Office—2401 Chestnut St.
Washington, D. C., Office—1st and K Streets, N. E.
Chicago Office—111 W. Washington St.

Samples also Displayed in

Boston, Mass., at Architects Exhibit, Inc., 11 Beacon St.
Cleveland, Ohio, at Architects Exhibit, Inc., Hanna Bldg.
Detroit, Mich., at Architects Exhibit, Inc., Barlum Tower.
New York, N. Y., at Architects Sample Corp., 101 Park Ave.
Philadelphia, Pa., at Architects Exhibit, Inc., 17th and Sansom Sts.

Ketcham Shower Stall Doors and Enclosures

Patented Oct. 21, 1926



Door With Grille



Showing Enclosure
Plate No. 7

Ketcham Shower Stall Doors are made in three standard sizes:

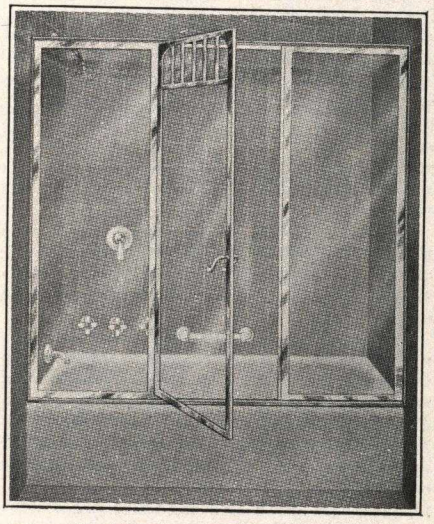
26 x 72 inches.
26 x 75 inches.
26 x 78 inches.

These actual photographs taken on jobs we have sold illustrate a most practical treatment of shower stall and bath tub enclosures, eliminating the necessity of shower curtains.

Our patented adjustable jamb feature takes care of inaccuracies of tile setting as well as contraction or expansion of the tile.

Ketcham Shower Stall Doors and Enclosures are constructed of solid brass. They can also be furnished nickel plated, chromium or gold plated.

Bath Tub and Shower Enclosures vary so much in size that we cannot standardize and therefore make enclosures according to conditions and sizes for each separate job.



Bath Tub Enclosure
Plate No. 2

Write for Booklet Illustrating Various Other Bath Tub and Shower Enclosures Manufactured by Us

Established 1903

CRIST & SCHILKEN CO., INC. PITTSBURGH, PA.

Office and Factory—500-508 37th Street

C & S Shower Stall Doors

(Patented)



***Nonpareil* Door**

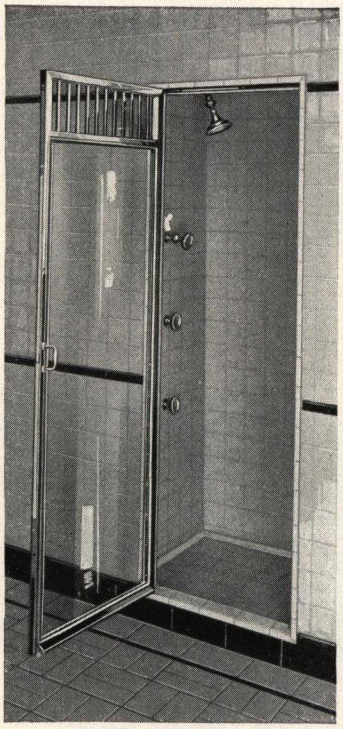
The ***C & S Nonpareil*** Model Shower Stall Door is particularly suitable for the large and luxuriously appointed Bath. It is impressive in design and emphasizes the importance of the shower stall.

The door rail is 2 inches wide by 1½ inches thick and is finished with an attractive offset extruded moulding which also serves as a stop for the Plate Glass panel. The glass is embedded in rubber to insure water-tight glazing, and to prevent breakage. An adjustable metal bound rubber sealing strip on the bottom rail forms a water-tight contact with the sill. An extended water table deflects the spray into the receptor.

A double acting spring tumble latch, approved for safety, holds the door tightly closed, but releases it instantly when pressure is applied, from the inside, to any part of the door.

Unless otherwise ordered, doors are furnished with selected quality clear Plate Glass panels, with ventilating grilles, and with full length heavy continuous hinges, so attached, that the doors will swing outward. A door check, which will stop the door at any fixed point, will be furnished without extra charge, if ordered.

Ornamental glass and moisture-proof mirrors may be substituted for the clear plate glass panels.



***Junior* Door**

Nonpareil Doors are built in standard sizes to fit finished openings measuring: 24x72, 25x74, 26x76 and 27x78 inches. Regular finishes are Nickel Plate, Nickel Silver (a solid white metal), Chromium Plate, Pewter Chromium, and Gold. Special finishes are available.

A special angle frame fitted with bulbous rubber against which the door strikes, is included, as is also all necessary hardware and fittings.

When installed in accordance with our details and instructions, the ***Nonpareil*** door is absolutely water-tight and is guaranteed against sagging.

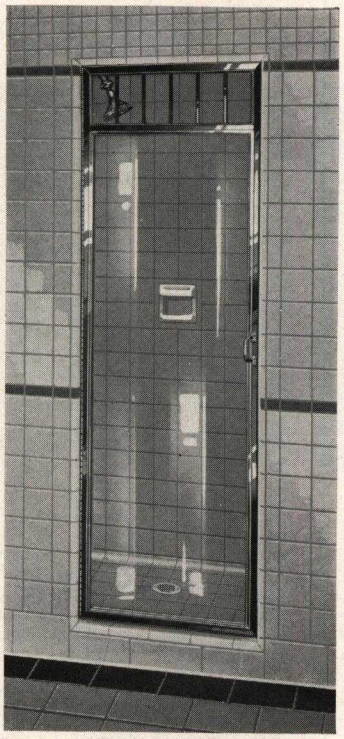
Shipping weight, approximately 200 lbs.
First-class freight rate applies.

Junior Door

The ***C & S Junior*** Model Shower Stall Door is similar in design and construction to the ***Nonpareil.*** It is furnished in the same regular sizes and finishes.

The only material difference is in the size of the framing members; the ***Junior*** door rail being slightly smaller, 1½-inch wide by 1-inch thick. It is an appointment especially intended for the small bathroom, and is priced accordingly.

Shipping weight, approximately 175 lbs.
First-class freight rate applies.



***Dolphin* Door**

The *Dolphin* Door

The ***C & S Dolphin*** Model Door was designed to meet the growing demand for low priced fixtures for the bathrooms in small homes, apartments and hotels.

It is furnished in only **ONE SIZE;** in **ONE FINISH,** and in **ONE STYLE.** Because of this complete standardization, a low price is possible without sacrificing quality either in materials or workmanship.

The ***Dolphin*** Door is made in only **ONE SIZE**—to fit a finished opening measuring 24x72 inches. It is finished only in finest Chromium Plate; and can be had in only **ONE STYLE**—with a ventilating grille. A heavy continuous hinge—on either right or left side, as desired—allows the door to swing outward.

The glass panel is selected quality Pennvernon Crystal Sheet Glass 7/32-inch thick. It is set in rubber channel to assure water-tight glazing. The latch is an adjustable double acting spring type approved for safety.

A water-table on the bottom rail deflects the spray into the receptor and an adjustable metal bound rubber strip forms a sealing contact with the sill. The door rail is 1½-inch wide by 1-inch thick, finished with an attractive relief moulding.

Shipping weight, approximately 175 lbs.

Blue Print Details for Roughing-in are Available
Write for Our Complete Catalog

C & S Shower Bath Enclosures

(Patented)



Nonpareil Model



Junior Model

The ***C & S Nonpareil*** Model Enclosure is best suited to the spacious Master Bath and the larger recessed tubs.

The simplicity of design and sturdy construction make it appealing as an appointment which will harmonize with the modern trend in bathroom creation.

The framing member is 2 inches wide by 1½ inches thick and is finished with an attractive offset extruded moulding.

The finishes of the metal are Nickel Plate, Nickel Silver (a solid white metal), Chromium Plate, Pewter Chromium, and Gold. Special finishes are available.

The standardized height of the Enclosure with stationary ventillating grille, as illustrated, is 72 inches which is the measurement between the rim of the tub and the finished ceiling. The height may be changed to suit the installation. The width varies with the size of the tub.

When the grille is omitted the Enclosure is usually furnished 62 inches high, including the head rail.

The ***Nonpareil*** Enclosure is shown with two doors and one stationary panel. If desired, this arrangement may be changed to one door, usually 26 inches wide, and two stationary panels. See ***Junior*** Enclosure illustrated.

Unless otherwise ordered, clear Polished Plate Glass panels will be furnished. Moisture-proof mirrors, either clear or colored; plain or decorated shatter-proof Plate Glass; and ornamented and colored glass may be substituted. Published list prices cover only clear Polished Plate Glass or semi-obscure Tapestry Plate Glass.

Approximate shipping weights: 375 lbs. with Grille; 350 lbs. without Grille.

First-class freight rate applies.

Junior Enclosures

The ***C & S Junior*** Model Enclosure follows the same general design and construction as the ***Nonpareil;*** the only material difference being in the size of the frame which is 1½ inches wide by 1-inch thick. It is suggestive of daintiness and is customarily specified for the small bathroom.

The same sizes and designs are furnished as described for the ***Nonpareil*** Enclosure.

Approximate shipping weights: 350 lbs. with grille; 325 lbs. without Grille.

First-class freight rate applies.

Enclosures of Special Design

Enclosures for corner tubs, pier pattern tubs, and tile or marble receptors are built to order; as are those with arched tops and folding doors for completely recessed baths. Let us submit sketches.

Blue Print Details for Roughing-in are Available

Write for Our Complete Catalog

FIAT METAL MANUFACTURING CO. CHICAGO, ILL.

1203 Roscoe Street

Manufacturers of

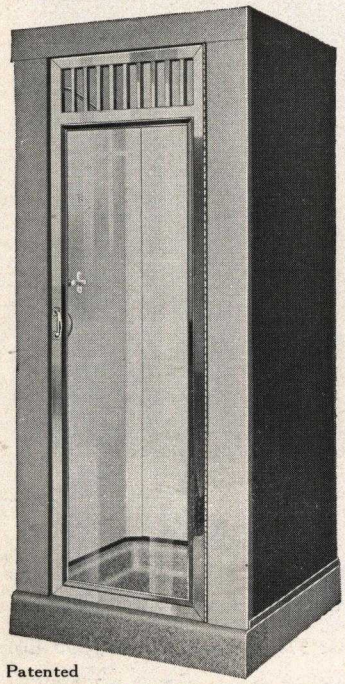
Fiat Shower Bath Compartments
Fiat Shower Stall Doors
Fiat All Steel Toilet Partitions
Nilson Protecto Bath Tub Covers

Fiat
TRADE-MARK

Branch Offices

New York, N. Y.
101 Park Avenue
Boston, Mass.
11 Beacon Street

Fiat Shower Bath Compartments Permanently Leakproof



Patented
Admiral with Regular Receptor and Chrome Plated Door

Fiat Shower Bath Compartments are complete water-tight enclosures forming the room in which the shower bath is taken. The floor is of polished precast art marble. The walls can be furnished in vitreous enamel (the same finish as on ordinary bathtubs), or high grade specially prepared galvannealed steel. The latter is furnished with waterproof prime coat of paint to be refinished after installation so as to harmonize with prevailing decorations. It can also be furnished in various colors of lacquer duco enamel.

Fiat Compartments are of knocked-down construction—very easily handled and installed. When assembled, they provide a permanent, leakproof compartment throughout.

They are shipped knocked down, accessible through any size door opening and easily assembled at point of installation.

Fiat Admiral

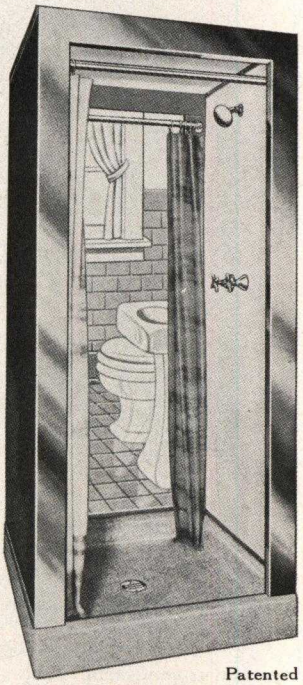
A shower compartment having vitreous enameled walls. Every requisite and refinement that could be desired is embodied in this fixture. The dazzling white porcelain walls, the hand polished marble inlaid surface of the receptor, give an air of ultra completeness and refinement. Walls are armco iron with vitreous enamel fused on at a temperature of 1600°.

Fiat Ensign

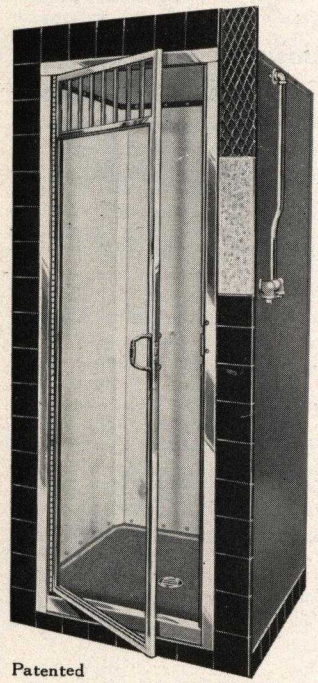
A shower compartment especially designed where economy is desired without sacrifice of refinement and beauty of appearance. Walls are high grade specially prepared galvannealed steel, finished in various colors of duco enamel, or in prime coat of paint and refinished at point of installation to harmonize with prevailing decorations.

Chrome Stile

Specially designed so that tile or plaster can be applied adjoining the brass chromium plated door frame without cracks occurring. Receptor has removable chromium plated threshold. Furnished in either Admiral or Ensign Model.



Patented
Two-way Entrance Utility Shower Compartment

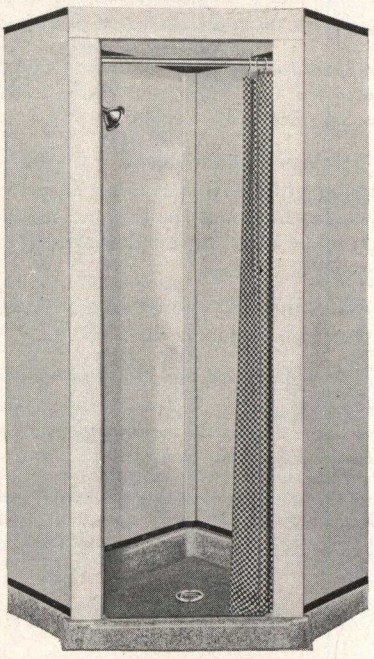


Patented
Admiral-Chrome Front Stiles Designed to Receive Tile

Sizes and List Prices

Size Inches W	D	Fiat Admiral Compartments Equipped for Use of Shower Curtain: With Regular Receptor	With Extended Receptor	Fiat Ensign Compartments (Prime Coat of Paint) Equipped for Use of Shower Curtain: With Regular Receptor	With Extended Receptor
30	30	$155.00	$165.00	$115.00	$125.00
30	32	155.00	.....	115.00	.....
32	32	155.00	165.00	115.00	125.00
34	34	170.00	185.00	120.00	135.00
30	36	170.00	.....	120.00	.....
36	30	170.00	185.00	120.00	135.00
36	36	170.00	185.00	120.00	135.00
36	42	190.00	.....	130.00	.....
42	36	190.00	205.00	130.00	145.00
46	36	210.00	.....	140.00	.....
48	30	210.00	.....	140.00	.....
48	36	230.00	.....	150.00	.....
46	44	250.00	.....	160.00	.....
36	36	190.00 (Corner Type)		130.00 (Corner Type)	
36	42	195.00 (Two Way Utility Type)		135.00 (Two Way Utility Type)	
42	36	195.00 (Two Way Utility Type)		135.00 (Two Way Utility Type)	
42	42	200.00 (Two Way Utility Type)		140.00 (Two Way Utility Type)	
		Chrome Stile Compartments			
36	36	180.00 (Admiral)		130.00 (Ensign)	

Above prices do not include door or curtain. If valves and shower head are not wanted, deduct $10.00 from prices as shown above. On the Ensign Compartments add $10.00 to the above prices for Duco Enamel Finish.

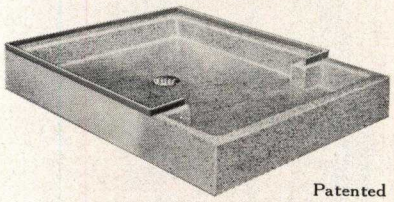


Patented
Admiral Corner Compartment



Patented

Regular Receptor
Used with Door or Curtain



Patented

Extended Receptor

Receptor extends 12 in. in front of shower compartment. Specially designed for showers equipped with curtain so that receptor will catch spray, splashing and drippings from curtain. Keeps floor in front of shower dry. Water in extension drains back to receptor.

Fiat Shower Bath Receptors

A leakproof base for any type of shower enclosure.

A complete one-piece watertight shower floor—eliminates use of lead pan, special drain fittings, grouting—and all expensive methods of shower floor construction. Can be installed on any kind of floor, either rough or finished.

Fiat receptors are made of the very finest quality of waterproof white cement and Vermont marble chips (chemically treated). These ingredients are thoroughly tamped and puddled in a steel mould, making a mass of maximum density which insures its superior watertight qualities. The receptor is then placed in a curing room for thirty days, and then hand-polished.

The polished black marble inlay and white background produce an extremely attractive surface which will harmonize with art marble, tile, or any bathroom floor.

The receptor has a smooth floor surface, but is so finished as to prevent slipping, whether wet or dry.

The Fiat Receptor is not "built-in" as part of the floor on which it rests, nor of the room walls which surround it. This is of the utmost importance as it prevents the future possibility of the receptor cracking, caused by settlement, vibration, shrinkage, expansion or contraction of the building walls and floors.



Corner Receptor Patented

This receptor is especially fitted where a corner of the room is the most adaptable place for the installation of a shower compartment and is designed to conserve space and give a maximum amount of bathing facilities as well as to produce distinct lines of beauty in appearance.



Chrome Stile Compartment Receptor

With removable brass chromium plated threshold. Specially designed for Fiat chrome stile compartment. This receptor with removable brass chromium plated threshold can also be used with various other shower enclosure walls.

Receptors furnished separate from compartments when required.

Note: The waste openings are always in center of receptor, except in corner receptors.

Details of Fiat Shower Compartments

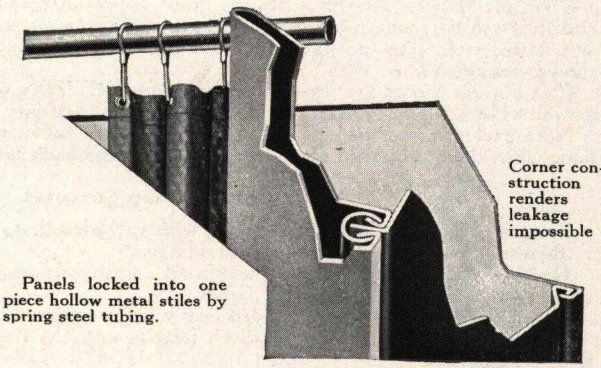
Leakproof—Knock-down Construction

Galvanized steel flange thoroughly embedded in body of receptor encases bottom of compartment, making leakage impossible.

4½-in. flat head chromium plated metal strainer and drain with removable face, set flush with the receptor floor, allows for inside calking of 2-in. waste pipe connection or where so desired, lead connection can be used by soldering to the inside shoulder of the drain provided for that purpose.

Height at which receptor is set with relation to finished floor can vary several inches. Installation on rough floor with finished floor laid to sides of receptor is recommended.

Drain fixture integral with receptor is set over 2-in. iron drainage P trap. To make waste connection to receptor remove strainer and use an ordinary lead calk joint. This insures an inexpensive and permanent leakproof connection.



Panels locked into one piece hollow metal stiles by spring steel tubing.

Corner construction renders leakage impossible

Valves—Standard equipment consists of 2 individual compression valves and head. Compartments can be drilled to accommodate any kind of valves or shower head.

Corrosion—Fiat Compartments are absolutely immune to corrosion.

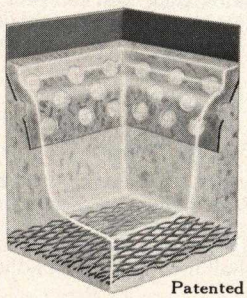
Leakage — Being an independent unit, Fiat Compartments are not subject to the detrimental effects of shrinkage, vibration, settling, expansion, contraction, and other potential elements so prominent in buildings, which create crevices through which leakage takes place.

Stiles and Headrail—Can be furnished either in hollow metal or designed to receive tile, plaster or other material on the outer surface. The latter makes it possible to carry out wainscot design.

Door Openings—All Fiat Shower Bath Compartments are made with door openings of standard size, so that compartments not originally furnished with doors may be so equipped at any subsequent time.

Compartment Walls — Rest on receptor shoulder, fitting snugly inside of receptor flange. Walls are shipped in knocked down form to facilitate handling and installation.

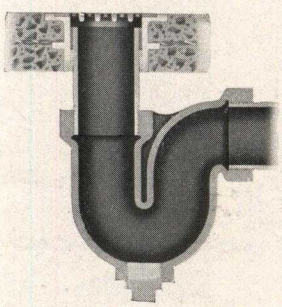
Simple—Practical—Permanent



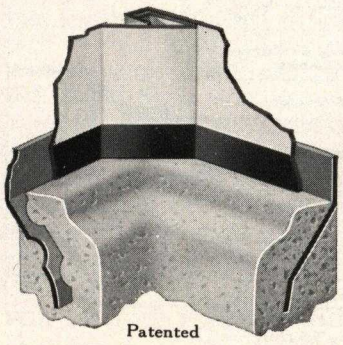
- The wall of shower enclosure is secured directly to 1-in. extension of galvanized steel flange.
- Perforations in flange insure bond.
- ½-in. expanded steel mesh reinforcing extends across entire receptor.
- No sharp corners or crevices.

Patented

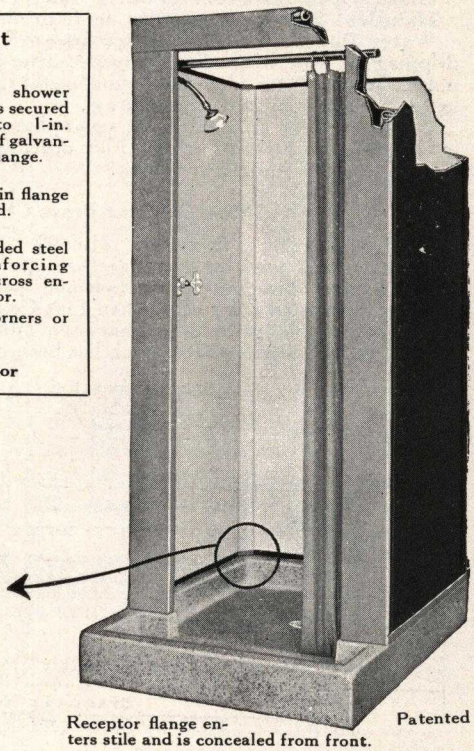
Corner Section of Fiat Shower Receptor



Drain Fixture Integral with Receptor



Patented

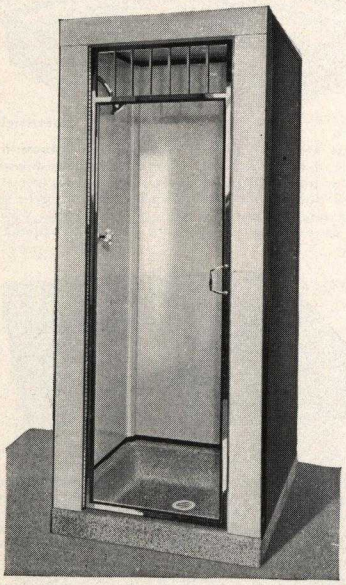


Receptor flange enters stile and is concealed from front.

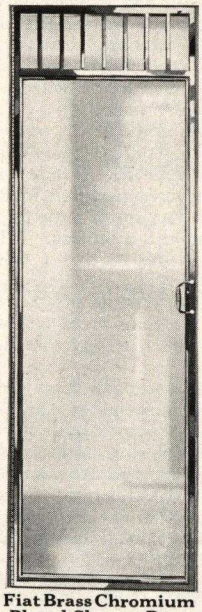
Patented

See Following Page

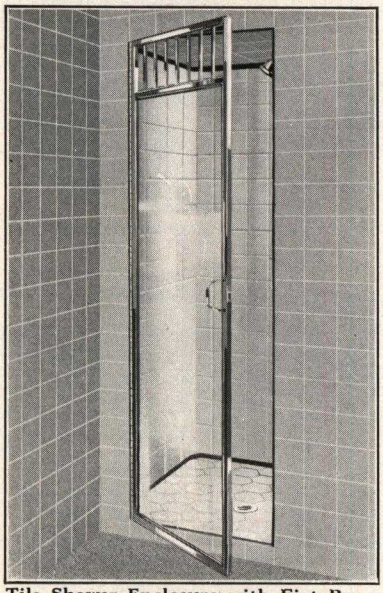
Fiat Shower Stall Doors for All Modern Shower Enclosures



Fiat Shower Bath Compartment with Fiat Brass Chromium Plated Door



Fiat Brass Chromium Plated Shower Door



Tile Shower Enclosure with Fiat Brass Chromium Plated Shower Door

The Fiat Shower Door presents the finest appearance and contributes the maximum of cleanliness in the modern bathroom. Because of its many exclusive features of construction and finish, architects and plumbing contractors specify Fiat Shower Doors on all modern shower enclosures.

Fiat Shower Doors are pre-eminently adaptable. They create effects which are livable as well as beautiful and from the standpoint of cost are very economical.

Note exclusive feature of drain gutter on water table, eliminating water dripping on floor when door is opened after use. Water drains back into receptor and **not on floor.**

Construction Features

Frame—Heavy yellow brass tubing, with extruded brass mouldings.

Jambs—Extruded yellow brass mouldings.

Hinge—Specially constructed, leakproof continuous piano hinge runs entire length of door, swings outward from stall. Brass.

Corners—Reinforced by extruded heavy brass angles.

Lock—Double acting friction catch fastens into the frame and is guaranteed against door binding.

Glass—¼-in. plate set into heavy waterproofing channel.

Handles—Special offset design, on both sides of door.

Water Deflector—Exclusive feature—drain gutter on water table eliminating water dripping on floor when door is opened after use. Water drains back into receptor and not on floor. Outer edge is of double metal rounded and bent so as to eliminate raw edge extending into receptor. Sheet brass.

Grille Vent—7 in. high, ⅜-in. square bars in opening.

Panels—Can be furnished in either obscure or clear glass.

Finish—Heavy chromium plating.

List Prices for Fiat Brass Chrome Plated Shower Doors

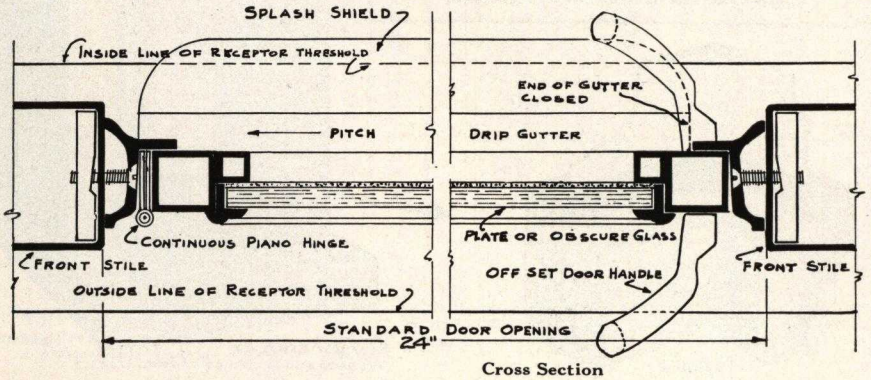
24 x 72....$95.00 25 x 74....$105.00 26 x 76....$110.00 27 x 78....$125.00

Regular stock sizes for opening—Sizes are in inches—Add for adjustable jam $6.00.

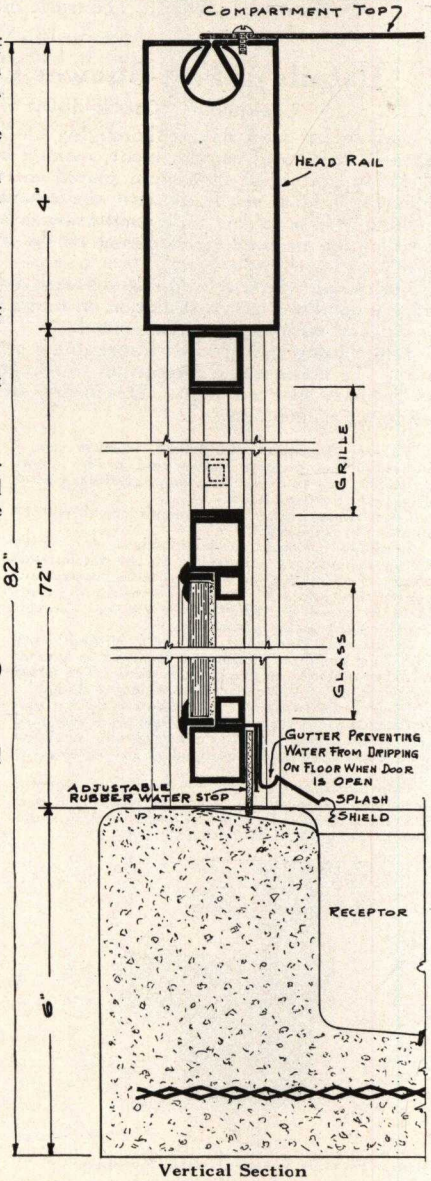
Special sizes furnished upon details and specifications.

When door is used for other than Fiat Compartments use Fiat Adjustable Jambs.

Fiat Adjustable jambs have a maximum adjustment of one-half inch and can be adjusted to take up irregularities after jamb has been installed.



Cross Section



Vertical Section

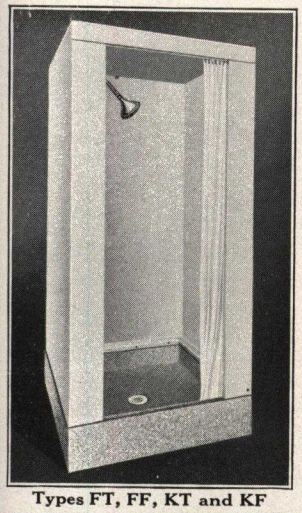
MILWAUKEE STAMPING COMPANY — MILWAUKEE, WIS.

Branch Offices

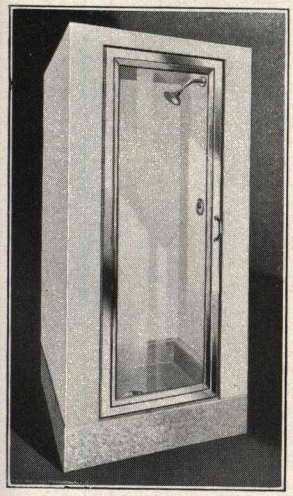
NEW YORK, N. Y., 416 Broadway — CHICAGO, ILL., 150 N. Wacker Drive — Representatives in all Cities

FERROMETAL

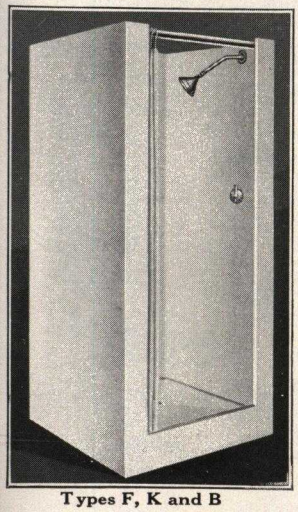
Shower Compartments



Types FT, FF, KT and KF



Types FT, FF, KT and KF With Door



Types F, K and B

Type "FT" with Terrazzo Receptors - Type "FF" with Ferrostone Receptors

Fabricated from No. 16 gauge, galvanized (rust resisting) copper bearing steel. Receptor made of Terrazzo, consisting of best grade waterproof tinted portland cement, mixed with finest white marble chips.

Shower body made of three pieces of metal with double-lock seams at rear corners. The two sides of shower are extended in one piece to form opening and are finished at shower entrance with heavy beaded formation eliminating raw edges. Shower body at bottom finished flush with inside face of receptor, held securely in place with heavy brass screws.

Types FT and FF

Width Inches	Depth Inches	Height Inches	Shipping Weight Pounds	List Price Terrazzo Base-FT	List Price Ferrostone Base-FF
30	32	77	500	$105.00	$ 83.00
32	32	77	575	105.00	83.00
36	36	77	675	110.00	87.00

Type "KT" with Terrazzo Receptors - Type "KF" with Ferrostone Receptors

Fabricated of No. 10 gauge Kupraluminum. Receptor made of Terrazzo, consisting of best grade waterproof tinted portland cement, mixed with finest white marble chips.

Sides, back and front pilasters are made of one continuous piece of metal and finished at shower entrance with heavy beaded formation eliminating raw edges. Shower body at bottom finished flush with inside face of receptor, held securely in place with heavy brass screws.

Types KT and KF

Width Inches	Depth Inches	Height Inches	Shipping Weight Pounds	List Price Terrazzo Base-KT	List Price Ferrostone Base-KF
30	32	77	425	$132.00	$116.00
32	32	77	485	132.00	116.00
36	36	77	565	138.00	122.00

Type "F" with Metal Receptors

Fabricated from No. 12 gauge, galvanized copper bearing steel. Shower body made of three pieces of metal with double lock seams at rear corners giving maximum strength and rigidity. Galvanized receptor welded to sides. Shower entrance is finished with heavy beaded formation to eliminate raw edges.

Width Inches	Depth Inches	Height Inches	Shipping Weight Pounds	List Price
30	32	72	285	$75.00
32	32	72	295	75.00
36	36	72	335	80.00
28	40	72	320	80.00
40	28	72	320	80.00

Type "K" with Metal Receptors

Fabricated from No. 10 gauge Kupraluminum. Front, side and back formed of one continuous piece of metal, welded to the bottom. Shower entrance is finished with heavy beaded formation eliminating raw edges.

Width Inches	Depth Inches	Height Inches	Shipping Weight Pounds	List Price
30	32	72	190	$125.00
32	32	72	205	125.00
36	36	72	215	125.00
28	40	72	205	125.00
40	28	72	205	125.00

Type "B" with Metal Receptors

Fabricated from No. 11 gauge, copper bearing steel sides with galvanized steel receptor. Front, sides and back formed of one continuous piece of metal welded to the bottom. Shower entrance is finished with heavy beaded formation eliminating raw edges.

Width Inches	Depth Inches	Height Inches	Shipping Weight Pounds	List Price
30	32	72	315	$72.00
32	32	72	330	72.00
36	36	72	375	75.00
28	40	72	335	75.00
40	28	72	335	75.00

IMPORTANT

Select size of stall which will pass through all passageways, doors and halls.

Ferrometal Steel Units are finished with one coat of special red lead primer, Kupraluminum Units are finished in aluminum prime. After installation it is recommended that they be given a coat of enamel or lacquer in any color desired. All Units are furnished with nickel plated brass curtain rod, soap dish, and a strainer face plate, also heavy cast brass waste connection. Drillings for valve and shower head, no charge, if location is specified on order.

Shower head, valves or curtain furnished at slight extra cost.

All types can be furnished with metal framed glass doors, can be finished with baked enamel or duco in any color desired.

NOTE: When ordering, give roughing in for any drillings required. Also state type and size of trap being used.

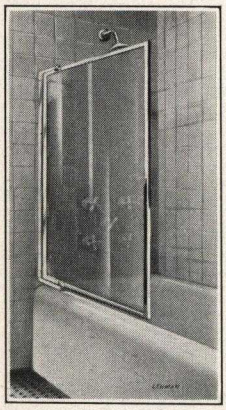
WRITE FOR DISCOUNT SHEET AND CATALOG GIVING FULL DETAILS

LEHMAN SPRAYSHIELD COMPANY — PHILADELPHIA, PA.

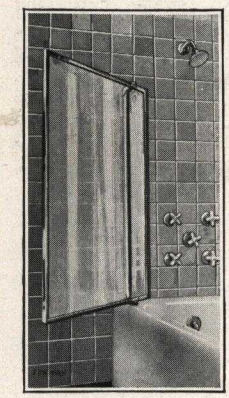
General Offices—2514-2518 North Broad Street

Representatives

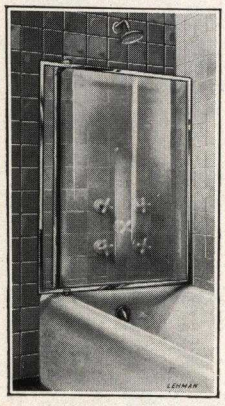
Albany, N. Y., Austin F. Loucks, Jr., 10 Montgomery St.
Bradley Beach, N. J., A. R. Finkel, 308 Second Ave.
Bridgeport, Conn., Meyer Olderman, 681 Cleveland Ave.
Brooklyn, N. Y., Johnston & Noesser, Inc., 1158-60 Myrtle Ave.
Detroit, Mich., Murray W. Sales & Co., 801 W. Baltimore Ave.
Houston, Texas, Thomas E. Price, 1009 Isabella St.
Minneapolis, Minn., C. G. Herbert, 2400 So. 7th St.
Richmond, Va., Jas. E. Phillips, Jr., 3115 Grove Ave.
Washington, D. C., Thomas E. Clark, Inc., 3407 Connecticut Ave.



No. 400
In use—a rubber seal makes the bottom watertight.



No. 400
Swing out—allow tub bathing and cleaning.



No. 400
Swung back—out of the way. Note side access to valves.

Patent Bathtub Shower Enclosures

Sprayshields for Built-in Bathtubs

A Sprayshield gives any built-in bathtub the conveniences of a stall shower. A single Sprayshield will confine all splash with a properly arranged shower, but standard units combine to form complete enclosures.

Inward Swinging with Space for Valves

Lehman patents cover the inward swinging feature over the bathtub. Swung inward the shield is out of the way, and provides space for the valves which can be reached at any time. As many bathrooms are too small for outward swinging, and as a stationary shield would interfere with tub cleaning and bathing, this feature is of great importance.

Swing Outward Also for Full Use of Tub

Lehman Sprayshields swing both ways and use universal fittings so that they may be attached over either end of tub. They hang a half-inch above the tub rim, and clear most toilet seats. When in use a friction catch holds the shield in position and a renewable rubber seal closes the space at the bottom.

Sprayshields are Permanent and Economical

The frames are solid bronze bars similar to those in our shower stall doors, and are regularly finished in chromium. They are very moderate in cost and since they never wear out they soon pay for themselves. They save replacement costs and laundering, and increase building values.

Easy Fitting—In Old or New Buildings

Sprayshields fit over the bathtub without any special roughing-in or advance preparation, so they can be used in buildings already completed. It is not necessary to drill the bathtub as all screws attach in the tile with expansion anchors. All weight rests upon the lip of the tub, and there is but little strain on the tile.

Choice of Models and Designs

Any design may be obtained in any of the three models listed below. These models differ in weight, minor details and in cost. All models are similar in general appearance and in operation and efficiency. All are custom made to size and fully guaranteed.

Swan Model—Extra heavy, selected quality glass.
Mermaid Model—Standard weight, polished plate glass.
Gem Model—Popular priced, good clear glass.

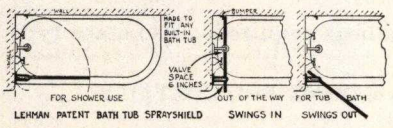
Made to Order any Size or Design

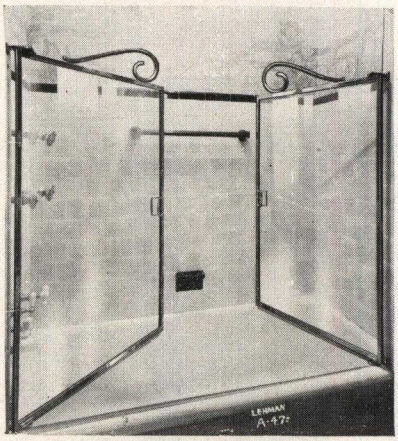
Standard size—

Swan and Mermaid Shields 32"x50";

Gem Shields 31"x50" (approx.).

Fit 30-inch wide bathtubs and require flat tile work 50 inches above tub.

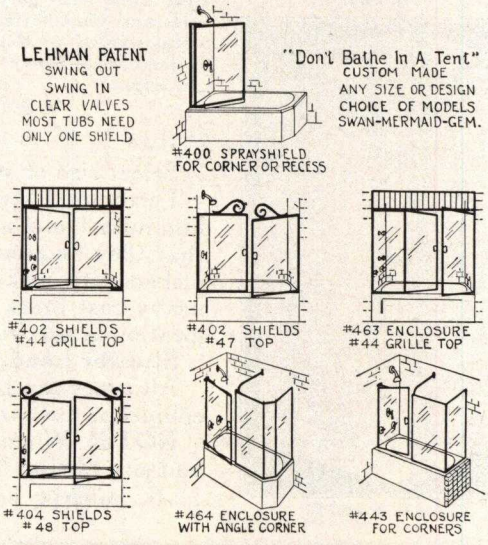




No. 402 Shields — No. 47 Top Shields Shown Turned Partly In—Photo A-48



No. 402 Sprayshields — No. 44 Grille Top No.703 (left) Glass Design—No. 704 (right) Glass Design—Photo A-32



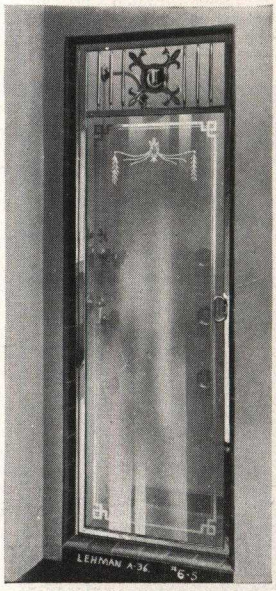
Shower Bath Doors and Enclosures

Custom Built for Perfect Fitting

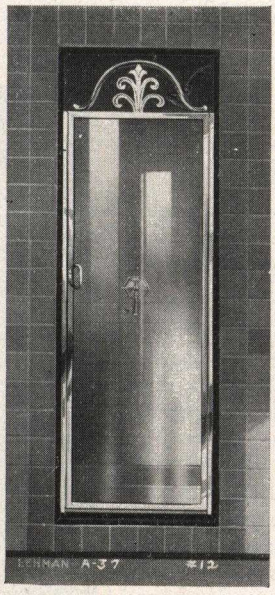
All Lehman Shower doors are custom built to size with a selection of glass and ornamental designs, yet they cost no more. They embody the results of engineering experience, and specialized production facilities, and will save installing time by simplifying erection. Just build the doorway reasonably square and send us finished dimensions. Do not build the bathroom for us as we make the door for you.

Solid Bronze Frame and Hinge

Lehman doors are fabricated of special metal bars which interlock with a minimum of screws, crevices and joints. The fittings are universally interchangeable so that any door can be fitted right or left hinge, on tile or marble and to swing either out or in. (Outward always recommended). The doors conform to irregular openings, and can be raised or lowered to insure close watertight fitting.



Above shows No. 6 Door with Monogram Grille and No. 706 Glass. Note tapered spindles. Photo A-36.



Above shows No. 12 Door, suitable also for Arch or Ornamental Openings. Moderate in cost. Photo A-37.



No. 1 Door with Special Ventilator, designed for high doorway. Photo A-3.



No. 510 Enclosure with No. 1 Doors and Panels, saves space and expense. Photo A-50.

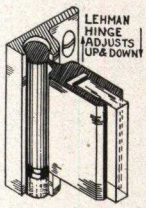
Lehman Patent Construction

The exclusive features covered by fourteen Lehman patents can only be secured in our equipment. Our design is the result of long specialization and will avoid difficulties and costly repairs.

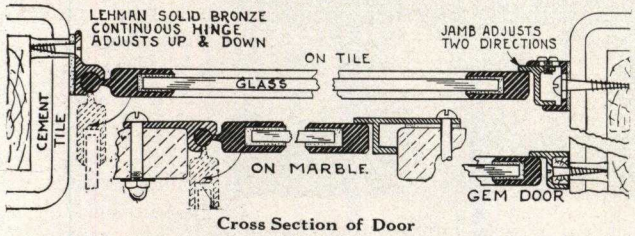
Mono-Sleeve Hinge machined integral with the door frame, prevents sagging and leakage and permits raising or lowering the door at any time by inserting or removing bearing shims. If the house settles or the door must be raised to correct a leaky threshold, or to add a special waterproofing sill seal, the adjustment can be made quickly.

Adjustable Jambs (on Swan and Mermaid models) telescope to conform to openings out of square or off size, and for alignment in two directions. Special jambs for all conditions.

Threshold Waterproofing—Renewable rubber waterseals are regular equipment, but six types of aprons, gutters, sill seals, and various combinations are interchangeable and adaptable to all doors. Note that the raising and lowering of doors permits close fitting and allows room for any required threshold equipment, which would not be possible with ordinary doors.



Prices—Write for catalogue, price list and discounts. Special quantity and showroom discounts. The new low prices of this permanent sanitary equipment make it suitable for all bathrooms.



Cross Section of Door

Choice of Models and Designs

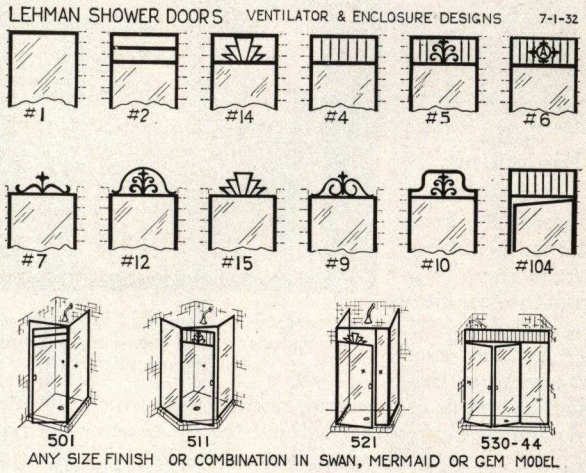
Swan Model—Extra heavy, selected quality glass.
Mermaid Model—Standard weight, polished plate glass.
Gem Model—Popular priced, good clear glass.

Any model may be secured in any standard design illustrated below and in any size, etc. All models are similar in appearance, but differ in construction details and weight.

Standard Size 24 inches x 72 inches finished measurement of tile or marble opening, but each item is made to size. (Inside height about 72½ inches to provide drainage of threshold).

Standard Door—Mermaid No. 4—The grille top Mermaid door is furnished with tile fittings when no model is specified.

Standard Finish—Chromium—Special finishes supplied on order. We have our own gold plating equipment and can guarantee durable gold plating and a heavy deposit.

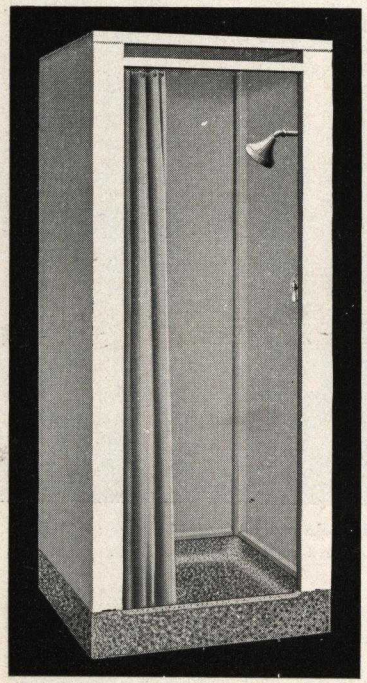


HENRY WEIS MANUFACTURING CO., INC. ELKHART, IND.

SHOWER CABINET DIVISION

Branches and Representatives

Colorado
Denver, Geo. Hamburger Co., 1715 California St.
Connecticut
Hartford, C. D. Crocker, 116 Grennan Rd., West Hartford
Illinois
Chicago, Henry Weis Mfg. Co., 228 N. La Salle St.
Peoria, Samuel J. Smith & Co., 510 Lehmann Bldg.
Indiana
Fort Wayne, Carl H. Penningroth, 1617 Curdes Ave.
Indianapolis, Hoover Bros. Co., 1008 Majestic Bldg.
Maine
Portland, Wm. S. Wade, 158 Walnut St. South Portland
Michigan
Detroit, C. M. Hargrave, 13623 Wark Ave.
Menominee, Ben. B. Holmes Company
Minnesota
Minneapolis, Frank S. Gouldthrite, Room 216, 923 Nicollet Ave.
Missouri
Kansas City, I. L. Roark Co., 2014 Wyandotte St.
St. Louis, Marcus T. Donahue, 740 Inter Drive University City, Mo.
New York
New York City, W. M. Henderson, Room 908, 101 Park Ave.
Ohio
Cincinnati, Jos. M. Beglen, 104 W. Pearl St.
Cleveland, R. L. Hanschke, 2029 Morrison Ave., Lakewood
Columbus, H. H. Leukart, 297 S. High St.
Pennsylvania
Harrisburg, George L. Grove, P. O. Box 112
Philadelphia, Geo. H. Lang, Terminal Commerce Bldg., 401 N. Broad St.
Pittsburgh, M. A. Sisk, 1108 House Bldg.



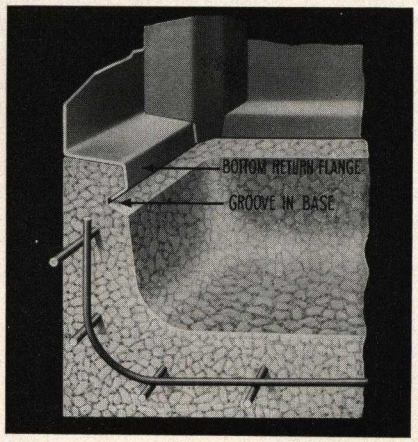
WEISWAY

Shower Bath Cabinets

The Weisway Shower Cabinet is virtually a small leak-proof room in which a shower bath may be taken in perfect comfort. The floor is not cupped; the surface and slope are such that it is practically impossible to slip upon it. Because the cabinet is independent, structurally, from the building in which it is installed, no subsequent settling of structural members can possibly cause it to crack or leak.

Handsome Reinforced Receptor

The receptor is made of the finest grade marble chips, mixed with Portland cement and color pigments and cast over reinforcement of heavy rods traversing the base in both directions. This makes the receptor entirely self-supporting, so that under any condition of uneven floor beneath, the heaviest load cannot cause it to crack. The receptor is cured, ground and polished to accurate size and to a beautiful finish. It is self-contained and can be set on any kind of rough or finished floor. Lead pan not required.



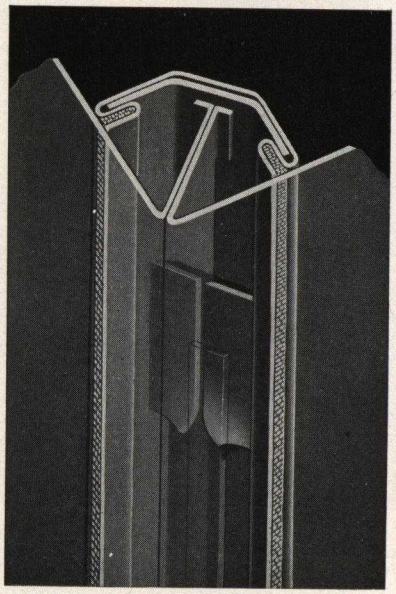
Sectional View Showing How Sidewalls Grip Receptor and Showing Receptor Reinforcement

Solid Rigid Unit

The side walls are composed of three sections, gripping the receptor entirely around the base and being locked to each other at the two rear corners of the cabinet by means of ingenious locking strips which hold them firmly and rigidly together without the use of screws or bolts. (See illustrations). These two features permit the making of a solid, rigid unit, easily put together by one man and has been proved under the most severe tests to be absolutely leak-proof.

For Old or New Buildings

The Weisway Shower Cabinet because of its independent construction, ease of installation and packing that enables it to be carried through any existing doorway, makes it especially suitable for remodeling work. Experience has demonstrated that it is frequently possible to make over a large closet or an alcove into an extra bathroom, using a shower cabinet instead of a tub and thus saving at least half the floor area.



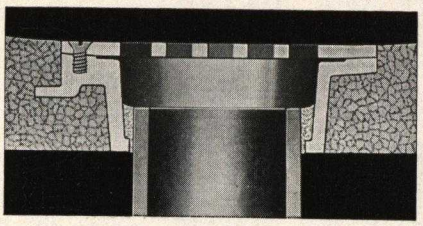
Phantom View of Corner Locking Strip, Seen from Outside. Absolutely Leakproof

In new construction, the small amount of space required for the Weisway Shower Cabinet frequently makes possible provision for an extra bath which would otherwise be quite out of the question.

Connection is Simple

Connection of the waste pipe is a very simple matter. The waste pipe is installed so as to project not less than ¾-inch nor more than 1¼ inches above the floor on which the receptor is to be placed. The drain outlet, with a removable face or grate plate, is cast integral with the receptor, which is set over the waste pipe so as to permit an inside lead caulked joint. In Weisway Cabinets the drain is always in the center of the receptor. Trap is not included with the cabinet.

Any make of shower head and valve can be used. Heads and valves are not supplied with the cabinet. Holes will be drilled at the factory without extra charge to accommodate whatever fittings may be selected, provided guaranteed sizes and locations are given in the order. (Helpful information concerning drilling layouts will be furnished on request).



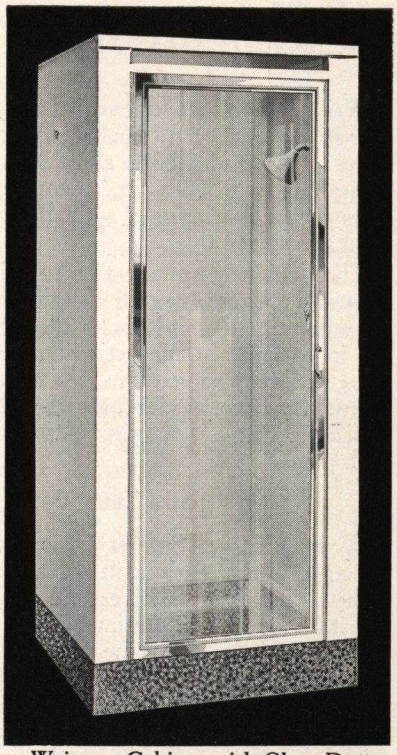
Sectional View of Drain Outlet Showing How Connection is Made

Receptor	Size 32" x 32" x 81" Catalog No.	Code	Shipping Weight Receptor Pounds	Shipping Wt. Side Walls Pounds	List Price	Size 36" x 36" x 81" Catalog No.	Code	Shipping Weight Receptor Pounds	Shipping Wt. Side Walls Pounds	List Price
WEISWAY Series A—Aluminum Alloy Walls, Baked Prime Coat—Fittings Chrome Plate										
Gray Art Marble	32A10	ABBAC	280	154	$132.00	36A10	AGLUK	315	166	$138.00
Green Art Marble	32A11	ACHOF	280	154	135.00	36A11	AJRAT	315	166	140.00
Ivory Art Marble	32A12	ADKEB	280	154	135.00	36A12	AKMOD	315	166	140.00
Green Art Stone	32A21	AFGYL	280	154	116.00	36A21	ASTEZ	315	166	122.00
WEISWAY Series B—Galvannealed Steel Walls, Baked Prime Coat—Fittings Nickel Plate										
Gray Art Marble	32B10	BADIR	280	265	$105.00	36B10	BILEM	315	300	$110.00
Green Art Marble	32B11	BAMOJ	280	265	107.00	36B11	BIXOB	315	300	112.00
Ivory Art Marble	32B12	BEGOX	280	265	107.00	36B12	BOFAS	315	300	112.00
Green Art Stone	32B21	BETAF	280	265	83.00	36B21	BORIK	315	300	87.00

1. Standard fittings included with all cabinets: Curtain rod, soap dish, strainer and outlet for 2-inch waste pipe (cast integral with receptor). All are brass. Series A fittings are chromium plated; Series B, nickel. Chromium plated fittings with Series B cabinets are an extra.
2. All series listed in baked prime coat. Special Weisway baked enamel as an extra.
3. Only listed sizes can be furnished. Shipment in prime coat, two days from receipt of order; in Weisway enamel, five days.
4. When guaranteed sizes and locations are given, cabinets will be drilled at factory to receive head and valves, without charge. Unless drilling instructions accompany order, cabinets will be shipped without drilling.
5. Glass door assembly complete or 100% pre-shrunk white duck curtains, with hangers, are available as extras.

List Prices—Miscellaneous Items

Chromium plated fittings for Series B Cabinet	$ 3.50
WEISWAY baked enamel for Series A or B, standard colors as listed below. Any solid color other than standard will be furnished same price as standard colors. Exact sample of any special color desired must be furnished	10.00
WEISWAY Glass Door, chromium plated, Assembly complete	85.00
Glass door assembly for opening 24⅜ x 69⅛ inches is standard for all Series A or B WEISWAY Cabinets. Shipping weight, 125 lbs. Curtain—White duck, 100% pre-shrunk, complete with rings.	3.00



Weisway Cabinet with Glass Door

Glass doors are offered for all types of Weisway Shower Cabinets. The door frame is of wrought brass and the jambs are of extruded brass, both chromium plated. Clear or obscure glass is optional.

Receptor and Sidewall Colors

Weisway receptors are supplied in Gray Art Marble, Green Art Marble, Ivory Art Marble and Green Art Stone. The color to be selected for the side walls of the cabinet and the surrounding room decoration should be considered when choosing the color of the receptor.

Weisway Shower Cabinets are supplied either in baked prime coat or, for a small additional charge, completely finished ready for use in color selected. A special baked enamel finish, made from a base similar to Bakelite, and which has been perfected for such strenuous protection of metal as is encountered with wire automobile wheels, is used. Standard colors are Green, Orchid, Ivory, Blue, Light Brown, Black and White. These colors will harmonize with practically any scheme of bathroom decoration and with other bathroom equipment.

Easy Installation

After the receptor has been put in place and the waste pipe connection made, one man, unaided, can assemble the side walls into place from inside the receptor. Skilled labor is not required except for making the plumbing connections. The ability to be assembled from inside the area of the receptor makes it particularly easy to install a Weisway Shower Cabinet in a closet, recess, or alcove in a finished or partly finished building.

The step-by-step process of the assembly of Weisway Cabinets is illustrated herewith. Assembly is quickly accomplished, and the design and construction of the cabinets makes it impossible to assemble them incorrectly.



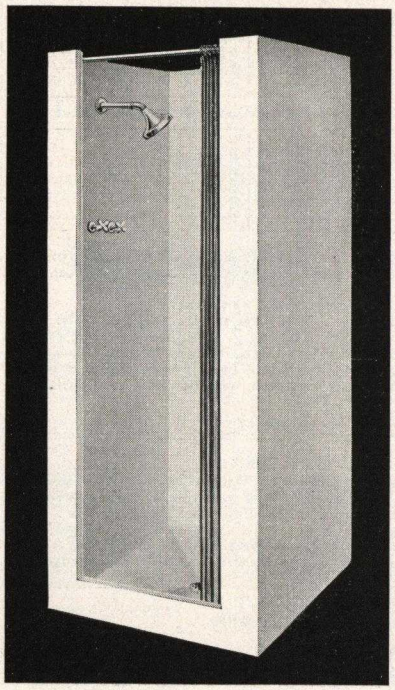
See Following Page

WEISTALL

Integral Shower Bath Cabinets

Weistall Cabinets are available in two series: Series "A," manufactured from a special aluminum alloy called Weisalloy; and Series "S," manufactured from copper bearing steel with the bottom from galvanized steel.

These cabinets can be set on any kind of floor and against any kind of walls. They are especially adaptable for hotel rooms, for use in batteries in connection with swimming pools or gymnasiums, for industrial plants, for country clubs, for the less expensive homes, for summer cottages, and such places.



Pat. Apr. 15, 1919

Cannot Leak

Weistall Integral Shower Cabinets are so constructed that each is, in effect, a single piece of metal. The sides and back are fabricated from one continuous sheet and the bottom is welded to the sides by a continuous weld, fusing the cabinet into a single unit absolutely leakproof. The bottom is equipped with a standard brass outlet for a 2-inch waste pipe, including sole leather gasket and lock nut and nickel plated strainer. Waste connection is easily made because the cabinet is simply set over the waste pipe and the joint lead caulked from the inside. No leakage can result from cracking, shrinking or settling of structural members, as the Weistall is entirely independent of the building.

The head and valve equipment is not furnished as any make or type can be used. When guaranteed sizes and locations are given, holes for the supply pipes, mixing valves, etc., will be drilled at the factory at no extra charge.

In new construction, it is not necessary to plaster behind cabinets. Grounds should be located 1 inch below top of cabinet and 1 inch from exposed corners. Cabinets can be secured to wall with 1/4-inch toggle bolts or lag screws. Holes for bolts are to be drilled at the job.

Finished After Installation

Cabinets are shipped from the factory with the prime coat only. A special waterproof primer is used, baked on at 350° F. The bottom and sides to be placed against masonry walls, if indicated on the order, are given an additional coat of special acid proof paint at no extra charge. When the cabinet has been installed, the interior and exposed exterior should be finished in waterproof enamel paint in any color desired.

Door and window openings should be considered before ordering. In new construction this is not so important except that provision must be made for getting the cabinet into the place of installation before openings are cased. For remodeling work, sizes numbers 2 and 3 are recommended since these may be carried through a 2′ 6″ doorway or window opening.

The data below gives the sizes, lists, weights, etc., on standard and special Weistall Integral Shower Cabinets.

Size, Inches	Series S—Steel				Series A—Aluminum Alloy			
	Catalog No.	Code	Shipping Weight Pounds	List Price	Catalog No.	Code	Shipping Weight Pounds	List Price
36 x 36 x 72	1S	WHIKK	360	$75.00	1A	WABUJ	220	$125.00
40 x 28 x 72	2S	WHOJE	360	75.00	2A	WACYS	220	125.00
28 x 40 x 72	3S	WILVI	360	75.00	3A	WADEB	220	125.00
32 x 32 x 72	4S	WINUS	340	72.00	4A	WAGIX	220	125.00

Note—List price for Size 4S or 4A also covers cabinets having one dimension 32-inch with other dimensions smaller than 32-inch.

1. Standard fittings included with all cabinets: Curtain rod, soap dish, strainer and outlet for 2-inch waste pipe. All are brass, nickel plated. Chromium plating furnished as an extra.
2. Weistall Cabinets furnished only in baked prime coat. Special acid-proof paint applied to bottoms and, if specified, side or sides to be placed against masonry walls.
3. Standard sizes can be shipped within two days from receipt of order with complete information.
4. When guaranteed sizes and locations are given, cabinets will be drilled at factory to receive head and valves, without charge. Unless drilling instructions accompany order, cabinets will be shipped without drilling.
5. Special sizes up to maximum or 48x48x84 inches, special arrangement of entrance openings, and special position of drain can be supplied on order. Quotations and shipping schedules furnished on request.
6. White duck curtains, 100% pre-shrunk, with hangers, furnished as extras.
7. CAUTION: When selecting sizes of Weistall Cabinets, door or window openings must be considered. No. 2 and No. 3 can be readily moved through 2 ft. 6-in. openings.

List Prices—Miscellaneous Items

Curtain with nickel plated hooks	$2.60
Curtain with chromium plated hooks	3.05
For chromium plated curtain rod, strainer and soap dish, add	3.50
For drain offset from center of bottom, add	7.80
Filler Plates for batteries, each	4.00
Joint Strips for batteries	No Charge
For Integral Shower Cabinet with double opening, add	$7.50

Extra at List for Special Sizes of Series S Cabinets

Definition of special size cabinet: Any cabinet larger than 36 inches either way shall be classed as special and take a group extra in accordance with the ollowing schedule: EXCEPTION: Cabinet 28"x40"x72" or 40"x28"x72" shall be classed as standard and priced, at list, $75.00.

Group extras given below are priced at list, subject to standard schedule of discounts.

Group No. 1—For these sizes add $9.00

Special Sizes	Total Weight
36"x42"x6'0"	394 lbs.
36"x42"x6'6" or 7'0"	449 lbs.
42"x42"x6'0"	428 lbs.
42"x42"x6'0" or 7'0"	487 lbs.
36"x48"x6'0"	432 lbs.

Group No. 2—For these sizes add $16.50

Special Sizes	Total Weight
36"x48"x6'6" or 7'0"	492 lbs.
42"x48"x6'0"	468 lbs.
42"x48"x6'6" or 7'0"	532 lbs.
48"x48"x6'0"	514 lbs.
48"x48"x6'6" or 7'0"	584 lbs.

Cabinet of standard width and depth, with special height 6'7" or 7'0" shall take an extra at list of $8.50
Cabinet of any size, with two openings shall take an extra at list (for additional opening) of 7.50
Cabinet of standard size, with opening on corner, shall be priced as standard cabinet of like size.
For crating steel cabinets for export shipments, add NET (not list) extra charge of $6.50
Note—Series A Cabinets usually furnished in standard sizes only. Information and prices on special sizes upon request.

PEERLESS SHOWER DOOR CO., INC. BROOKLYN, N. Y.

Main Office—192 Water Street

***Samples and Display*—Architects' Sample Corporation, 101 Park Avenue, New York, N. Y.**

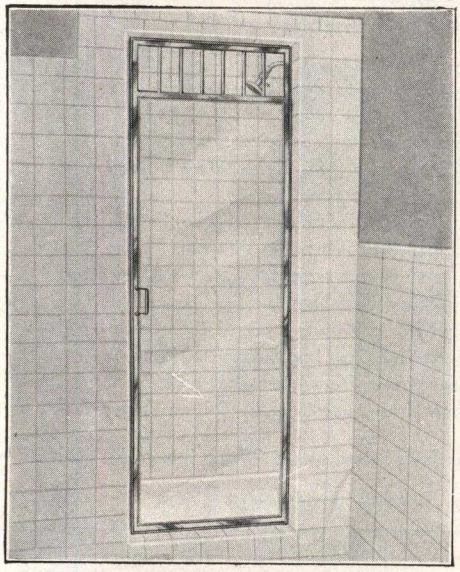
Peerless Shower Doors

The PEERLESS SHOWER DOOR COMPANY presents to an ever growing trade a new and improved line of shower door and bath enclosures.

The Peerless Shower Door is the product of scientific designing and expert workmanship. No effort has been spared to make the door a quality product.

Peerless Doors are installed wherever there is a need for a high quality, low priced shower door. 2000 Peerless Doors (Model No. 110) were sold in Long Island alone in one month.

All Peerless Shower Door Products are unconditionally guaranteed against any defect at any time.



No. 200

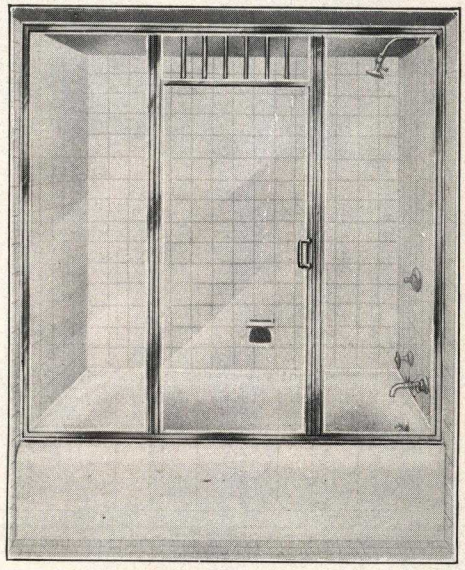
Special Features

1. No. 100 series Peerless Doors are made with a newly designed combination drawn tube and channel 1½ inches wide by ¾-inch in thickness.

2. All corners are re-enforced by die castings secured inside of doors. No screws show on face.

3. Newly designed saddle fastened underneath door is adjustable to a snug fit, making the door completely water-proof.

4. Water deflector on inside of door is so constructed that water rolls back into shower stall when door is opened.



Niagara Bathtub Enclosure
Door Hinged Left

SIZE: 26x72 or 26x78 recommended. Small additional charge for doors over 30 inches wide. All Peerless Shower Doors are custom built.

INSTALLATION: Peerless Shower Doors can be installed by any plumber or mechanic in a minimum of time and effort. Complete installation hardware is furnished with each door.

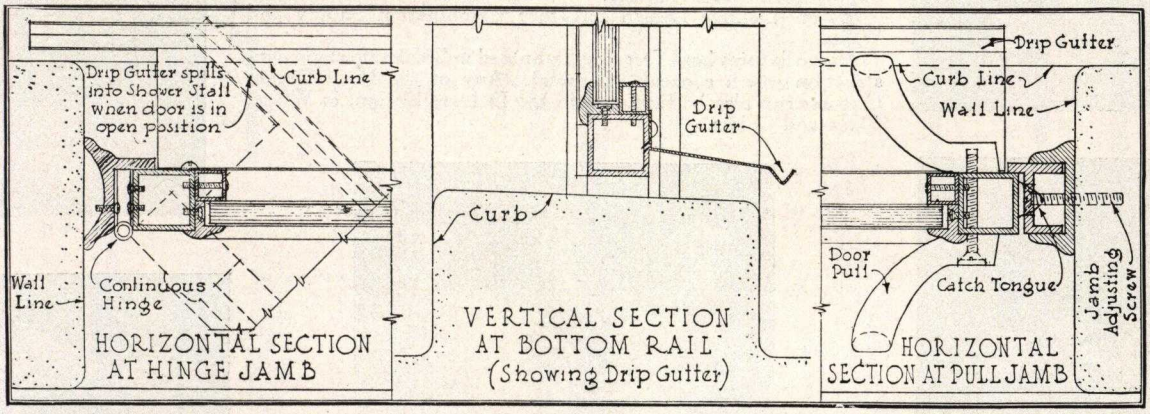
SHIPPING NOTE: Approximate weight of door crated and boxed, 150 pounds. Full freight allowed.

List Prices

Model 110	Brass combination tube and channel construction, non-adjustable jambs, demi plate glass, finished in chromium plate	$ 85.00
Model 111	Same as No. 110 with the exception of ornamental grille	85.00
Model 120	Same as above with the arched grille	95.00
Model 200	Brass tubing construction, removable glass, polished plate glass and adjustable jambs, finished in chromium plate	100.00
Model 300	Solid Brass and Bronze construction throughout. Easily removable glass, polished plate glass, adjustable jambs, ***hand hammered*** and chromium plate	170.00

New Discounts to the Trade

New Illustrated Catalog and Discounts Will Be Sent on Request



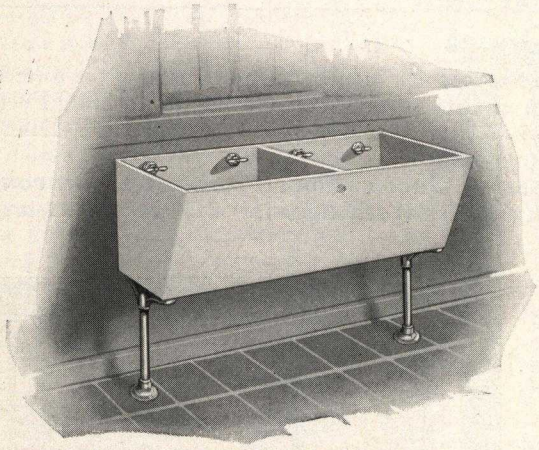
Cross section of Niagara model door, showing extension of drip gutter deflector. Note how glass is held in place with easily removable inside tubing.

Door closed with drip gutter deflector attached on door.

Showing adjustable jamb, with adjusting screws, interlocking handles and position of the double action latch.

ALBERENE STONE COMPANY — NEW YORK CITY

General Offices—153 West 23rd Street



Style K-104
Two-Compartment Trays without High Back.

No.	Length Inches	Width Inches	Depth Inches	Approximate Shipping Weight, Lbs.
K-104 -5	40	22	14	300
K-104B-2	42	22	14	376
K-104 -6	44	24	16	415
K-104 -3	48	24	16	445
K-104B-4	48	24	14	438

Style K-105
Two-Compartment Trays with Integral 9-inch High Back.

No.	Length Inches	Width Inches	Depth Inches	Approximate Shipping Weight, Lbs.
K-105 -5	40	22	14	350
K-105B-2	42	22	14	445
K-105 -6	44	24	16	465
K-105 -3	48	24	16	515
K-105B-4	48	24	14	498

Laundry Trays and Sinks

For more than 40 years Alberene Stone Fixtures have been the standard of serviceability. K-104, lacquered for beauty, sized for today's requirements, guaranteed (as are all Alberene Fixtures), and priced amazingly low, meets the needs of today for economy of space and money. This tray like every other Alberene Fixture, is made of solid, quarried soapstone; modeled and finished with Alberene's traditional attention to detail.

Other Alberene Stone Fixtures

Style K-101—Single tray without high back—4 sizes.
Style K-102—Single tray with integral 9-inch high back—3 sizes.
Style K-108—3 compartment tray—no back—2 sizes.
Style K-109—3 compartment tray with integral 9-inch back—2 sizes.
Style K-134B—Tray and sink without high back—4 sizes.
Style K-135B—Tray and sink with 9-inch integral high back—4 sizes.
Style K-146B—Plain sink, bevel front, no high back—7 sizes.
Style K-147B—Plain sink, bevel front, 9-inch integral high back—7 sizes.
Style K-146—Plain sink, straight front, no high back—5 sizes.
Style K-147—Plain sink, straight front, 9-inch integral high back—5 sizes.
Style K-156—Sink with double drainboard, plain 9-inch integral back—9 sizes.
Style K-151—Sink with single drainboard, plain 9-inch integral high back—9 sizes.

Write for details and prices.

THE DECECO COMPANY — BOSTON, MASS.

General Offices—76 Batterymarch Street

Dececo All-China Lavatory, Bath and Shower Fixtures

622-H—Combination Lavatory Supply and Waste for integral Supply Nozzle or Spout under Hood Lavatories.
624-H—Combination Lavatory Supply and Waste, with "Lift" pop-up waste.
628-H—Combination Lavatory Supply and Waste with "Turn" pop-up waste.
633-H—Combination Lavatory Supply and Waste, with Ice Water Valve in Wall.
1150-H—4½-inch China Shower Head with China Encased Shower Arm.
1115-H—Concealed Bath Supply and Waste with Top Nozzle Supply with China Housing.
651-H—DeLuxe Design Lavatory Combination Supply and Waste.
Above fixtures have Dececo guaranteed unbreakable china construction which conceals all metal. Any of the Plain Design Fixtures can also be furnished in the DeLuxe Design, in White, Black and Colors.



622-H



324-H



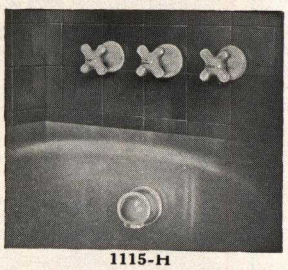
633-H



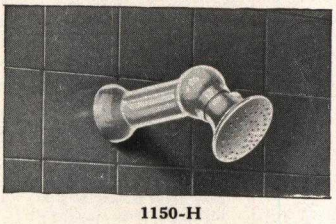
651-H Deluxe Design



628-H



1115-H



1150-H

CHICAGO GRANITINE MFG. CO. CHICAGO, ILL.

Main Office—4920 South Rockwell Street
Factories at—Chicago, Illinois—Cincinnati, Ohio—Denver, Colorado

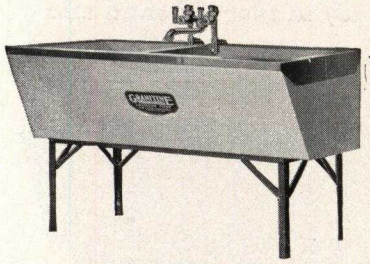
GRANITINE GUARANTEED
Trade Mark Reg. U. S. Pat. Off.

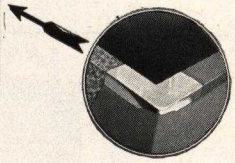
"Ajax" Granitine Laundry Trays

"AJAX" GRANITINE Laundry Trays are all equipped with SAFETY Round Cornered Metallic Rims; also wringer guards, brass strainers, rubber plugs and twin waste connections.

MEMBER CONCRETE LAUNDRY TRAY INSTITUTE

They are scientifically reinforced with steel rods, which gives great strength to the tray without excessive weight.





Here is the Patented **SAFETY** Round Cornered Rim Piece that is cast into all of the four rim corners. It is easily the finest safety device for the woman who does the washing, that has ever been put on any laundry tray. No extra charge.

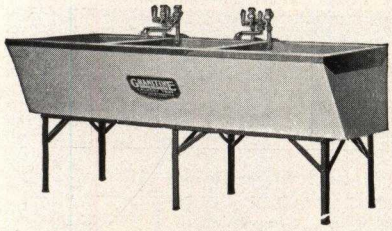


Two Compartment Tray

No.	Length Inches	Width Inches	Depth Inches	Approximate Weight Pounds	List Price
6	48	24	16	350	$20.00
7	54	24	16	375	23.00
8	60	24	16	400	26.00

Two Compartment Tray—6-Inch Back

No.	Length Inches	Width Inches	Depth Inches	Approximate Weight Pounds	List Price
106	48	24	16	400	$28.00
107	54	24	16	425	33.00
108	60	24	16	450	38.00



Three Compartment Tray

No.	Length Inches	Width Inches	Depth Inches	Approximate Weight Pounds	List Price
10	72	24	16	550	$32.00
11	80	24	16	575	36.00
12	90	24	16	600	40.00

Three Compartment Tray—6-Inch Back

110	72	24	16	600	$44.00
111	80	24	16	625	50.00
112	90	24	16	650	54.00





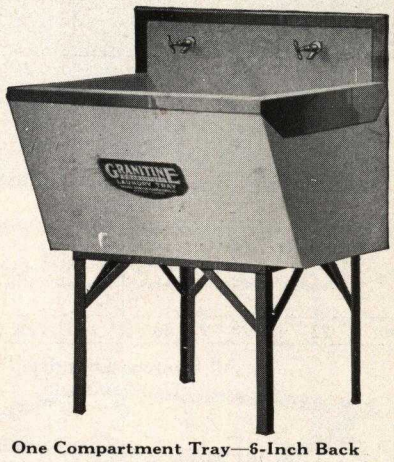
One Compartment Tray

One Compartment Tray

No.	Length Inches	Width Inches	Depth Inches	Approximate Weight Pounds	List Price
2	25	24	16	175	$13.00
3	27	24	16	200	14.00
4	31	24	16	225	15.00

6-Inch Back

No.	Length Inches	Width Inches	Depth Inches	Approximate Weight Pounds	List Price
102	25	24	16	175	$15.50
103	27	24	16	200	17.00
104	31	24	16	225	19.00

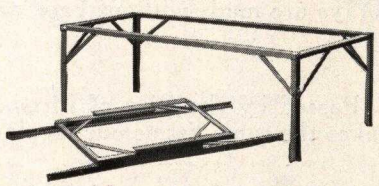


One Compartment Tray—6-Inch Back

Frames for Laundry Trays

Sizes and List Prices

No.	Length Inches	Width Inches	Height Inches	Weight Pounds	List Price
2	24	15	18	11½	$2.00
6	40	15	18	14	2.00
7	46	15	18	16	2.50
8	52	15	18	18	2.75
10	64	15	18	21	3.00



Folding frames, of angle steel, green enameled. Special sizes made to order. All sizes not shown in list take list price of $5.00.

THE KASTONE CO.

MEMBER CONCRETE LAUNDRY TRAY INSTITUTE

CLEVELAND, OHIO

P. O. Box 1709 Station "D"

Manufacturers of

Kastone SUPER-CRETE Laundry Trays

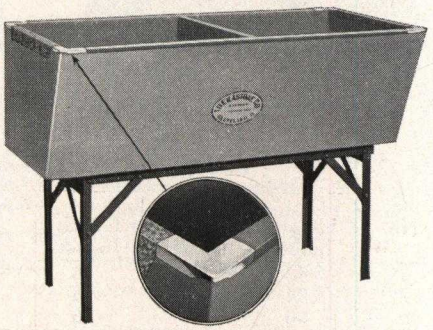
The Laundry Tray With the Round Corners

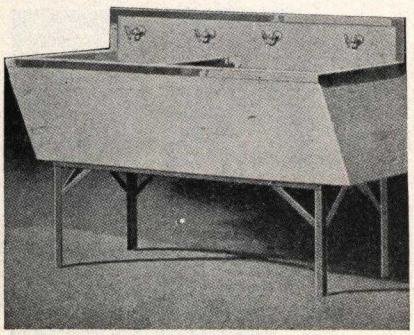
The Kastone SUPER-CRETE Laundry Tray is a tougher product, is much lighter in weight and has greater heat resistance due to the use of HAYDITE (Patented) in place of sand and stone in its manufacture. Fully reinforced throughout.

Kastone SUPER-CRETE One Part Tray—Without Back

Number	Length Inches	Width Inches	Depth Inches	Approximate Weight, Pounds Crated	List Price
101	25	24	16	140	$13.00
102	27	24	16	155	14.00
103	31	24	16	170	15.00

All Kastone Laundry Trays have full 1½-inch outlets.





Kastone SUPER-CRETE Two Part Tray—Without Back

Number	Length Inches	Width Inches	Depth Inches	Approximate Weight, Pounds Crated	List Price
201	48	24	16	270	$20.00
202	54	24	16	285	23.00
203	60	24	16	300	26.00

Kastone SUPER-CRETE Two Part Tray with Six-Inch High Back—All One Piece

Number	Length Inches	Width Inches	Depth Inches	Approximate Weight, Pounds Crated	List Price
251	48	24	16	295	**$28.00**

All Kastone Laundry Trays have full 1½-inch outlets.

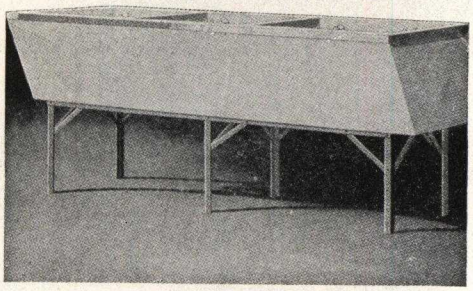
Kastone SUPER-CRETE Three Part Tray—Without Back

No.	Length Inches	Width Inches	Depth Inches	Approx. Weight Pounds Crated	List Price
301	72	24	16	400	**$32.00**

Kastone SUPER-CRETE Three Part Tray with Six-Inch High Back—All One Piece

No.	Length Inches	Width Inches	Depth Inches	Approx. Weight Pounds Crated	List Price
351	72	24	16	435	**$44.00**

All Kastone Laundry Trays have full 1½-inch outlets.



Kastone SUPER-CRETE Laundry Trays are integrally cast in one piece, with metallic rims and wringer guards, brass strainers, rubber plugs and twin waste connection. Measurements cover outside dimensions. Trays are made without back and with six-inch high back, are hand finished and securely packed and crated.

"The Pittsburgher"

Passed by the City of Pittsburgh. Made to conform to the Pittsburgh Code. The "PITTSBURGHER" takes the same list as our regular line. Made in all sizes and types.

Manufacturers of The Kastone SUPER-CRETE Septic Tank

CHAS. WESELY COMPANY CHICAGO, ILLINOIS

3116-28 South Canal Street

Stonetex Laundry Trays

Trays with six-inch high back raise the faucets above the tray allowing more working space. Integrally cast in one piece. With metallic rim and metallic wringer guards, brass strainers, rubber plugs and twin waste connection. Special sizes or brass rimmed trays are supplied upon specifications nominating these requirements. All fittings extra. All trays have faucet holes partly drilled. Measurements cover outside dimensions.



Stonetex Two Part Tray

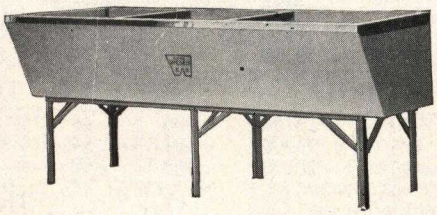
Without Back

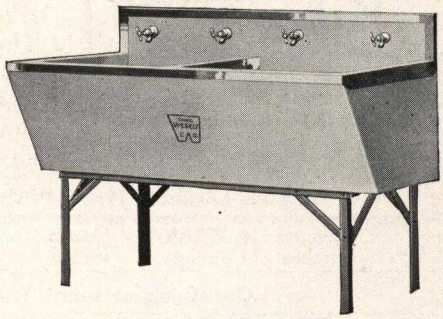
No.	Length Inches	Width Inches	Depth Inches	Weight Pounds	List Price
6	48	24	16	350	$20.00
7	54	24	16	375	23.00
8	60	24	16	400	26.00
With Back					
106	48	24	16	400	$28.00
107	54	24	16	425	33.00
108	60	24	16	450	38.00

Stonetex Three Part Tray

Without Back

No.	Length Inches	Width Inches	Depth Inches	Weight Pounds	List Price
10	72	24	16	550	$32.00
11	80	24	16	600	36.00
With Back					
110	72	24	16	600	$44.00

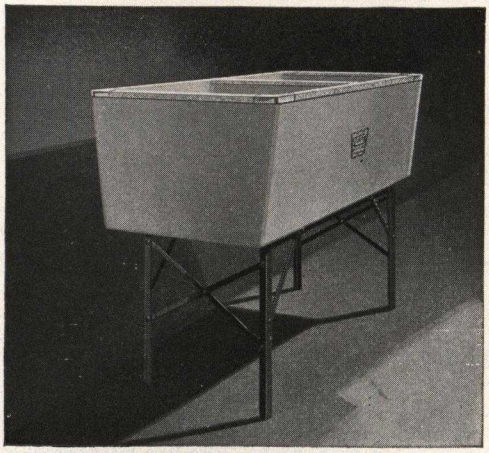




Stonetex One Part Tray

Without Back

No.	Length Inches	Width Inches	Depth Inches	Weight Pounds	List Price
2	25	24	16	175	$13.00
3	27	24	16	200	14.00
4	31	24	16	225	15.00
With Back					
102	25	24	16	175	$15.50
103	27	24	16	200	17.00
04	31	24	16	225	19.00

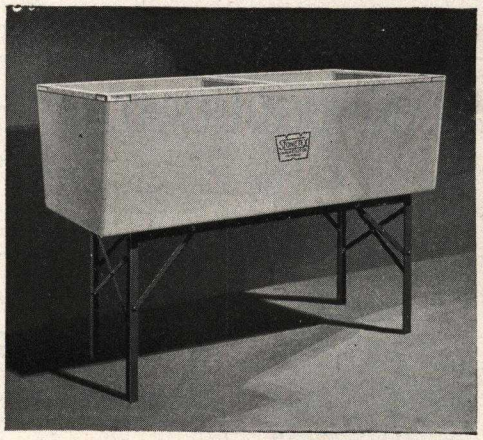


Mode-Stonetex Trays

Mode-Stonetex Laundry Trays carry the same list prices as the regular Stonetex trays shown above and, with the exception of the high back, are cast in the same sizes.

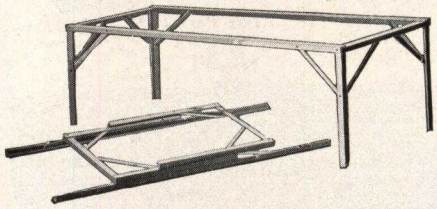
This style tray is slightly lighter in weight; has a larger capacity and is easy to handle owing to an evenly distributed weight.

It can be installed against or away from the wall and is accessible on all sides.



Mode-Stonetex One Part Tray

No.	Length Inches	Width Inches	Depth Inches	Weight Pounds	List Price
2	25	24	15¼	165	$13.00
3	27	24	15¼	190	14.00
4	31	24	15¼	215	15.00



The "Wesely" Steel LaundryTray Frame

No.	Length Inches	Width Inches	Height Inches	Weight Pounds	List Price
2	24	15	18	11½	$ 2.00
6	40	15	18	14	2.00
7	46	15	18	16	2.50
8	52	15	18	18	2.75
10	64	15	18	21	3.00

Mode-Stonetex Two Part Tray

No.	Length Inches	Width Inches	Depth Inches	Weight Pounds	List Price
6	48	24	15¼	330	$20.00
7	54	24	15¼	355	23.00
8	60	24	15¼	380	26.00

"Wesely" Sink Frame

No.	Size Inches	List Price
301	16 x 24	$1.40
302	18 x 24	1.50
303	18 x 30	1.60
304	18 x 36	1.70
305	20 x 30	1.80
306	20 x 36	1.90

Black enameled. Collapsible.

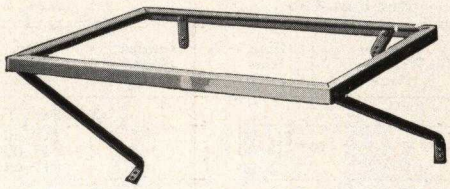
Black enamel. Frames are adjustable, 15 or 17-inch, to take care of stone or Mode-Stonetex Trays.

All sizes not listed have list price of $5.00, F. O. B. Chicago.

Full freight allowed on shipments of 300 pounds or more.

Mode-Stonetex Three Part Tray

No.	Length Inches	Width Inches	Depth Inches	Weight Pounds	List Price
10	72	24	15¼	520	$32.00

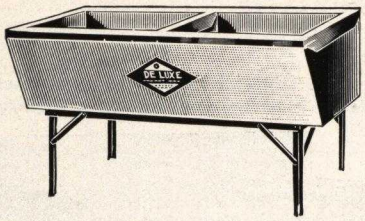


"Wesely" Sink Brackets

No.	Size Inches	List Price Pair
401	11 x 14	$0.70
402	12 x 17	.75
403	14 x 18	.80

CONCRETE FIXTURES CO. CHICAGO, ILL.

4824-26-28 West Kinzie Street



Two-Compartment Tray Without Back

DeLuxe Granitine Laundry Trays

These trays are moulded in one piece and are fully reinforced throughout. They are made of the finest materials. The trays are white and the surface is velvety smooth. All inside corners are fully rounded making the trays easily cleaned and such corners will not catch dirt. The outside corners are also slightly rounded so as to prevent chipping in handling, shipping and installing.

All De Luxe Trays are furnished complete with metal rims, wringer guards, brass strainers, rubber plugs, collars, bolts, etc.



One-Compartment Tray With Integral Back

De Luxe Laundry Trays, Without Back

No.	Length Inches	Width Inches	Depth Inches	Approx. Weight	List Price
One-Compartment Trays					
2	25	24	16	175	$13.00
3	27	24	16	200	14.00
4	31	24	16	225	15.00
Two-Compartment Trays					
6	48	24	16	350	20.00
7	54	24	16	375	23.00
8	60	24	16	400	26.00
Three-Compartment Trays					
10	72	24	16	550	32.00

De Luxe Laundry Trays, With 6-Inch Integral Back

No.	Length Inches	Width Inches	Depth Inches	Approx. Weight	List Price
One-Compartment Trays					
102	25	24	16	200	$15.50
103	27	24	16	225	17.00
104	31	24	16	250	19.00
Two-Compartment Trays					
106	48	24	16	410	28.00
107	54	24	16	425	33.00
108	60	24	16	450	38.00
Three-Compartment Trays					
110	72	24	16	600	44.00

STANDARD-ELSMERE GRANITE COMPANY CHICAGO, ILL.

Branch Factory
1008 E. Front Street, Cincinnati, Ohio

MEMBER CONCRETE LAUNDRY TRAY INSTITUTE

Main Office and Factory
1750-58 N. Spaulding Avenue



One Part Tub

Universal Granitine Laundry Tubs

Equipped with wringer guards, metallic rims, brass plugs, strainers and waste connections. Can be furnished with or without 6-inch high back.

All laundry tubs with high backs will have faucet holes partly drilled only, unless otherwise ordered.

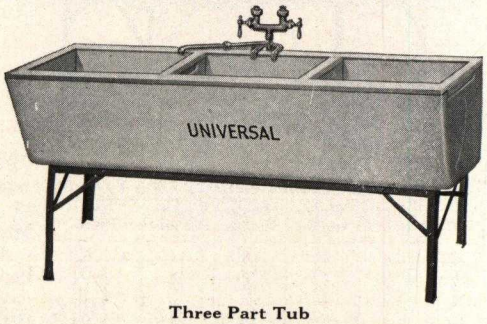
All measurements are outside. Special sizes made to order.

No extra charge for crates.



Two Part Tub

Number Without Back	Zinc Rim Price	Number With Back	Zinc Rim Price	Length Inches	Width Inches	Depth Inches
One Part Tubs						
2	$13.00	102	$15.50	25	24	16
3	14.00	103	17.00	27	24	16
4	15.00	104	19.00	31	24	16
Two Part Tubs						
6	$20.00	106	$28.00	48	24	16
7	23.00	107	33.00	54	24	16
8	26.00	108	38.00	60	24	16
Three Part Tubs						
10	$32.00	110	$44.00	72	24	16
11	36.00	111	50.00	80	24	16
12	40.00	112	54.00	90	24	16



Three Part Tub

THE BEATON & CADWELL MFG. CO. NEW BRITAIN, CONN.

New York City Office—234 Water Street ESTABLISHED 1894

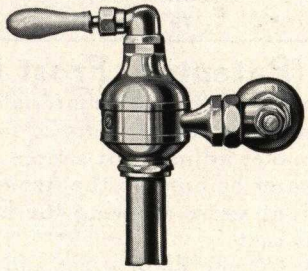
Simplex and Cadwell Flush Valves

Flush Valves

Valves are especially designed for schools, apartments, office buildings, factories, public installations of all kinds.

Valves may be used with any standard bowl that has been approved by the Bureau of Standards, where there is volume of water sufficient to flush bowl without valve or tank.

The oscillating handle on the Simplex flush valve is constructed so that handle may be set in any position desired.



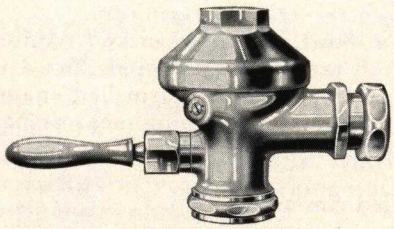
Simplex Flush Valve

Siphon Proof

Both valves are constructed so as to prevent contents of closet bowls siphoning to supply pipe and contaminating water.

Simplex valves have integral "Vacuum break" which allows air to enter valve with water, no moving parts required.

Cadwell valves have movable ball (placed above by-pass so that foreign matter cannot prevent proper action).



Cadwell Flush Valve

The by-pass is so constructed that there are four different channels. If foreign matter accumulates in one of these it is possible to turn plug to one of the other three in which case the accumulation should be washed out without taking valve apart.

Finish

Unless otherwise specified all valves except concealed type will be furnished nickel plated. Exposed parts of concealed valves are nickel plated.

Chromium plated valves can be furnished at higher prices. This finish is especially recommended for long life; resists tarnish and corrosion indefinitely. No polishing required on chromium plated flush valves.

Illustrations

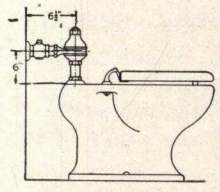
The following line cuts show various roughing-in measurements which apply to either type valve. Special variations can be complied with.

The same letters apply on both valves but be sure and definitely indicate which style is desired, Simplex or Cadwell.

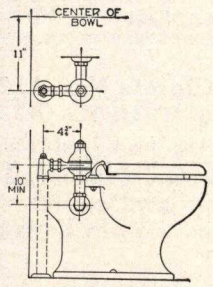
Either oscillating metal handle or metal push button can be supplied as desired. Oscillating handle can be furnished where push button is shown, and vice versa.

Outside By-Pass Control

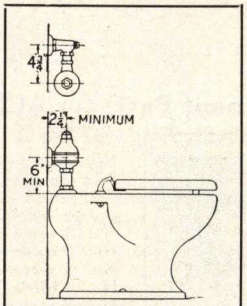
The Simplex and Cadwell flush valves have a time plug arrangement that allows valve to be adjusted from the outside of valve (when necessary). All valves are regulated at the factory for the usual conditions.



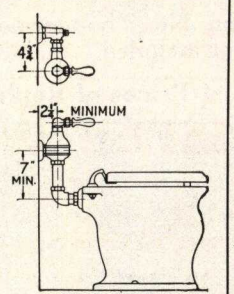
Style D
1¼" Flush Connection
Style DR
1½" Flush Connection
List Price $23.00



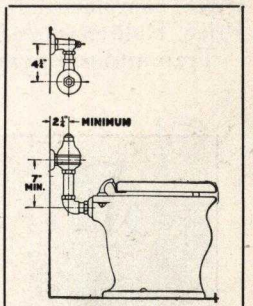
Style EA
1¼" Flush Connection
Style EAR
1½" Flush Connection
List Price $24.50



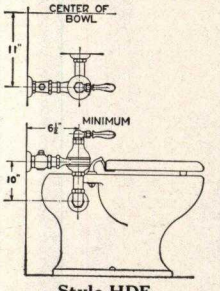
Style A
1¼" Flush Connection
Style AR
1½" Flush Connection
List Price $23.00



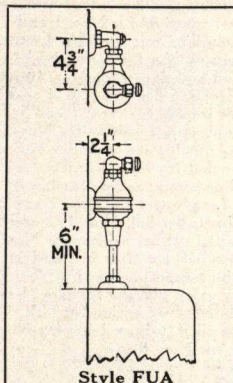
Style HAE
1¼" Flush Connection
Style HAER
1½" Flush Connection
List Price $24.50



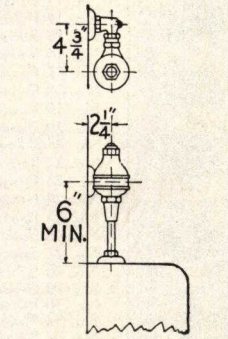
Style EA
1¼" Flush Connection
Style EAR
1½" Flush Connection
List Price $24.50



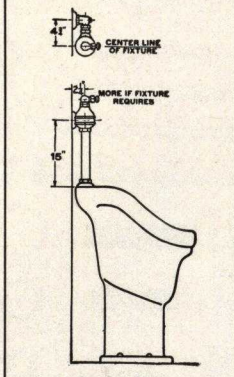
Style HDE
1¼" Flush Connection
Style HDER
1½" Flush Connection
List Price $24.50



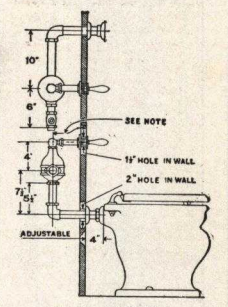
Style FUA
¾" Angle Stop and ¾" Outlet
List Price $22.00
Can be furnished with oscillating handle or top push button.



Style UA
¾" Angle Stop and ¾" Outlet
List Price $22.00



Style QFA
1¼" Flush Connection
Style QFAR
1½" Flush Connection



Style CDEEH
1¼" Flush Connection
Style CDEEHR
1½" Flush Connection
List Price $26.00
Can be furnished with push button instead of oscillating handle. Same list price.

Extra list prices for concealed valves. When wall is more than 1 inch in thickness add to list price as follows: 1 to 2 in., 60c, and 30c for each additional inch in thickness. Roughing-in measurements of concealed valve applies only to Simplex. Roughing for Cadwell concealed valve supplied on request.

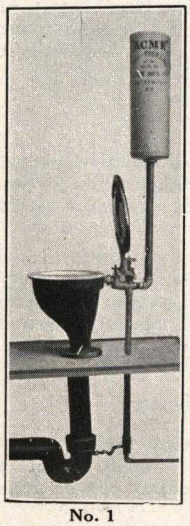
THE ACME FROST PROOF CLOSET MFG. CO. BALTIMORE, MD.

3 to 9 North Central Avenue

New York, N. Y.
Wm. E. Lawton, 280 Madison Ave.

Representatives:
Philadelphia, Pa.
Chas. W. Cromb, Bourse Bldg.

San Francisco, Cal.
Wm. P. Horn & Co.



No. 1

Acme (Patented) Frost Proof Closet No. 1

This closet is constructed of high grade materials, and will withstand the severest weather. Free and easy valve action allows full capacity of tank to flush the bowl, adjusting disc back of seat and separate valves makes adjustment simple and easy on the Acme.

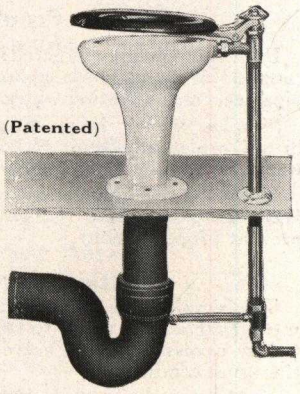
There is no chance for water hammer in the Acme Frost Proof Closet, as the seat rests on top of the adjusting disc of front valve allowing the lifting plate of main valve to be practically free from the weight of the seat.

The spring arrangement, to cone shaped seat and washer, eliminates all leakage and unnecessary stuffing boxes.

Can be installed anywhere—odorless—sanitary.

Tall oval flushing rim bowl, enameled inside, reinforced, guaranteed seat 8x24 galvanized tank and flush pipe. Brass valve and fittings. Malleable seat casting. Can be furnished enameled outside. Trap and soil pipe not included. Roughing measurements for Acme No. 1 Closet, 17 inches from wall to center of outlet.

Price, complete ..... List $30.00
Price, Tall oval enameled rim hopper No. 1 ..... List 8.50



(Patented)

No. 2

Acme Frost Proof Closet No. 2

Acme Frost Proof Closet No. 2 has a continuous flush while in use.

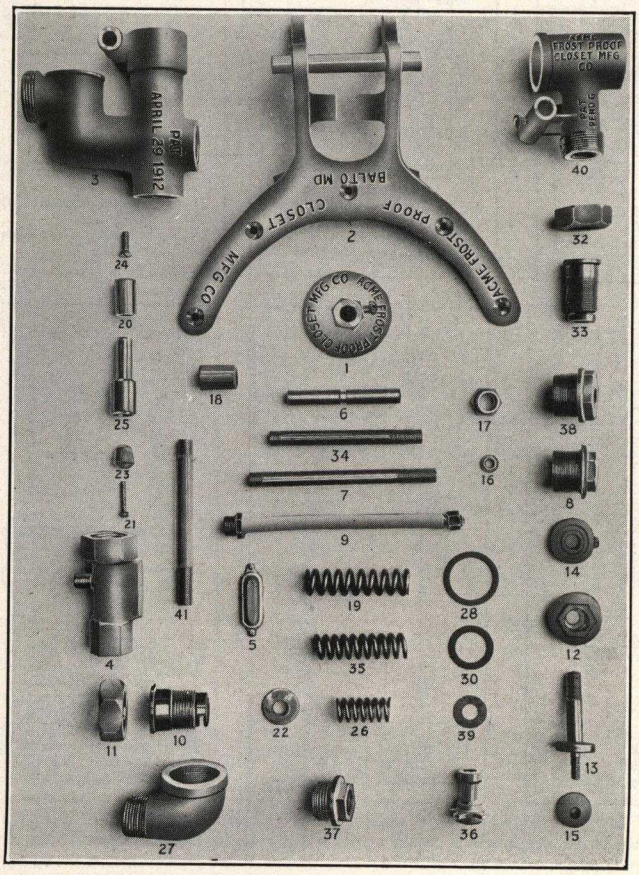
Enameled inside hopper, enameled rim, hardwood seat, with malleable casting, lead waste connection. Valve assembled with 3-ft. 3-in. valve rod and casing.

Roughing measurement for Acme No. 2, 14 inches from wall to center of outlet.

Price, complete ..... List $17.50
Price, Roll enameled rim, No. 2 hopper only ..... List 5.25

Trap and soil pipe not included.

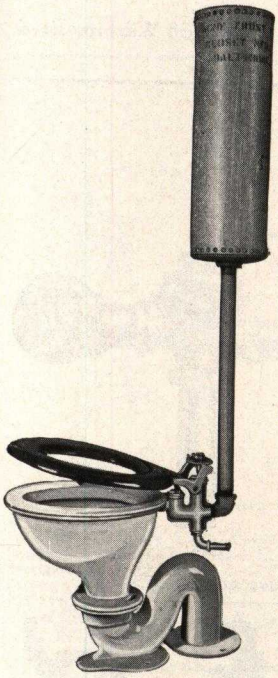
List Prices of Replacement Parts for ACME Closets Nos. 1, 2, 5



Enameled inside bowl for Nos. 1, 2 and 5	$ 8.50
Seat complete with trimmings for Nos. 1, 2 and 5	3.75
Golden Oak guaranteed seat for Nos. 1, 2 and 5	2.25
Galvanized Tank, 8x24 inches	7.50
No. 1 valve complete	13.21
No. 2 valve complete	9.25
No. 5 valve complete	10.50
No. 1 Lifting plate	.50
No. 2 Seat casting, malleable	1.25
No. 3 Brass top valve body for Nos. 1 and 5	4.50
No. 4 Brass bottom valve body for Nos. 1 and 2	1.90
No. 5 Seat buffers, pair	.12
No. 6 Seat hinge pin brass rod for Nos. 1, 2 and 5	.38
No. 7 Brass rod, ½-in., for No. 1	.50
No. 8 Brass top cap nut for Nos. 1 and 5	.94
No. 9 Lead waste connection for Nos. 1 and 2	.75
No. 10 Brass flush valve swivel for Nos. 1 and 5	.53
No. 11 Large brass coupling nut for Nos. 1 and 5	.53
No. 12 Brass stem cap nut for Nos. 1 and 5	.94
No. 13 Brass stem rod and flange for Nos. 1 and 5	.94
No. 14 Brass seat adjusting disc for Nos. 1 and 5	.44
No. 15 Stem graphite washer for Nos. 1 and 5	.07
No. 16 Brass nut for stem rod washer for Nos. 1 and 5	.18
No. 17 Brass packing nut for stem rod for Nos. 1 and 5	.38
No. 18 Galvanized socket for Nos. 1 and 2	.07
No. 19 Large phosphor bronze spring for No. 1	.50
No. 20 Brass socket for plunger for Nos. 1 and 2	.31
No. 21 Brass screw for fuller ball Nos. 1, 2 and 5	.10
No. 22 Top cone-shaped rubber washer for Nos. 1, 2 and 5	.07
No. 23 Graphite fuller ball for Nos. 1, 2 and 5	.07
No. 24 Brass screw for top of plunger for Nos. 1 and 2	.10
No. 25 Brass bottom valve plunger for Nos. 1 and 2	.63
No. 26 Small phosphor bronze spring for Nos. 1 and 5	.38
No. 27 Special nipple ell, 1¼-in. x 1-in., for Nos. 1 and 5	.38
No. 28 Fibre washer for No. 8 cap	.05
No. 29 Fibre washer for No. 12 cap	.05
No. 30 Fibre washer for No. 10	.05
No. 31 ½-in. galvanized rod	.75
No. 32 Small brass coupling nut for No. 2	.40
No. 33 Small brass flush valve swivel for No. 2	.65
No. 34 Brass rod, ½-in., for No. 2	.50
No. 35 Phosphor bronze spring for Nos. 2 and 5	.38
No. 36 Guide and flange socket for fuller ball for No. 5	.75
No. 37 Supply inlet nut for No. 5	.90
No. 38 Brass top cap nut for No. 2	.94
No. 39 Brass washer for spring rest for Nos. 1, 2 and 5	.07
No. 40 Brass top valve body for No. 2	3.25
No. 41 Brass rod, ½-in., for No. 5	.50

Acme Factory Closet No. 5

(Patented)



No. 5

The No. 5 factory closet is made to stand hard usage. Enameled inside only, flushing rim hopper with S trap, hardwood seat, galvanized tank and flush pipe, heavy brass flush valves. Malleable seat castings.

This Closet is intended for inside installation, same flush and quality as our frost proof closet.

When ordering specify style of trap desired.

Roughing measurement for Acme No. 5, 17 inches from wall to center of outlet of bowl.

Price, complete	List	$30.00
Price, Short oval enameled rim hopper for No. 5	List	8.50
Price Trap, ½ S. or S. enameled inside	List	4.40
Price, for bowl and trap enameled outside add to list		8.75

Acme Automatic School and Factory Closet No. 6

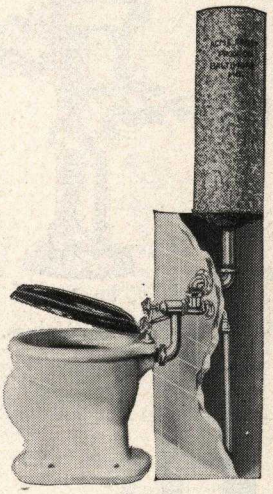
Acme automatic pressure tank closet with vitreous china wash down bowl. Golden Oak seat, reinforced galvanized malleable hinges, 8x24-inch galvanized pressure tank, which is concealed. Acme heavy brass no leak valve. No packing nuts. Will fit any standard wash down and syphon jet bowl.

Valve can be repaired without moving tank or bowl.

It is necessary to mention thickness of wall when ordering Acme No. 6.

Roughing measurements for Acme No. 6, 11 inches from wall to center of outlet.

Price, complete	List	$45.00
Price, for syphon jet bowl, add list		12.50
Price, for extended lip bowl, add list		5.00



No. 6

(Patent Applied for)

Acme Automatic School and Factory Combination No. 9

Acme automatic pressure tank closet with vitreous china wash down bowl, golden oak seat with reinforced galvanized malleable hinges, 8x24-inch galvanized pressure tank and Acme heavy brass no leak valve. No packing nuts. Will fit any standard wash down and syphon jet bowl. Valve can be repaired without moving tank or bowl.

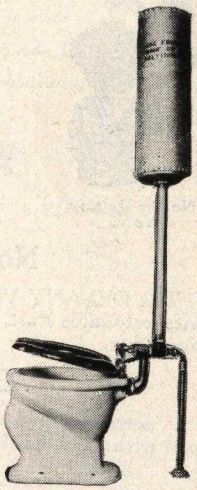
Roughing Measurements

For Acme No. 9 Closet with syphon action bowl, 13½ to 15½ inches from wall to center of waste outlet.

For syphon jet bowl 15 inches from wall to center of waste outlet.

For reverse trap bowl from 9 to 10½ inches from wall to center of waste outlet.

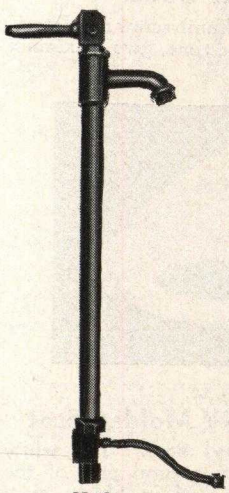
Price, complete	List	$45.00
Price, for nickel plated supply pipe, fittings and controling valve, add list		7.50
Price, for syphon jet bowl, add list		12.50
Price, for enameled tank, add list		5.00
Price, for extended lip bowl, add list		5.00



No. 9

Acme Frost Proof Hydrant

(Patented)



Hydrant

With this hydrant you can have running water at all times in all seasons of the year. Can be used in the garage, auto filling station or on the farm.

In freezing weather, if garage is not heated, it is safest to drain the water out of the automobile radiator to keep from freezing. Then the hydrant furnishes the means of refilling the radiator with fresh water, also for washing the car in moderate weather.

Strong, durable and simply constructed as is possible, having only one washer, without a stuffing box and packing, this means no leaks at stem.

When repairs are necessary unscrew top cap nut, then withdraw rod from casing.

Made in lengths from 3 to 5 feet.

Price, complete with lead waste connection ..... List $7.50

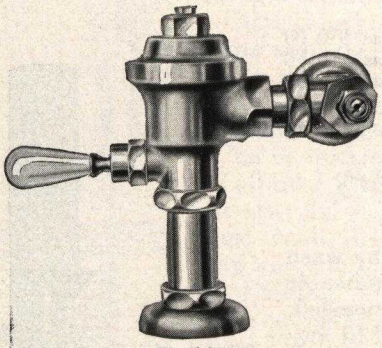
COYNE & DELANY COMPANY BROOKLYN, N. Y.

General Office and Factory—828-834 Kent Avenue

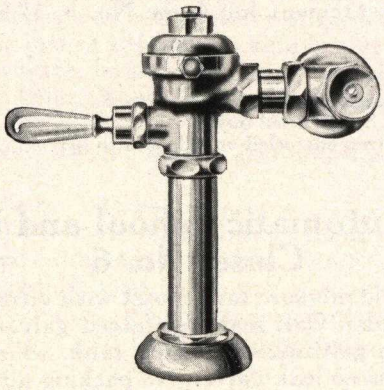
Representatives

Dorchester, Mass., E. F. Sheehan, 93 Auckland St. **Los Angeles, Cal.,** E. L. Keithley, 3158 Wilshire Blvd.
San Francisco, Cal., E. A. Keithley, 100 Potrero Ave.

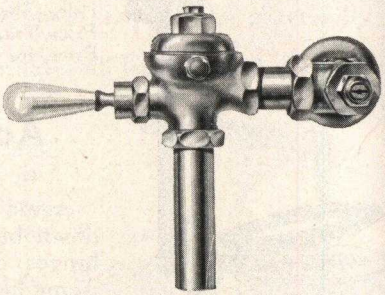
DELANY Flush Valves



Flushboy



Presto



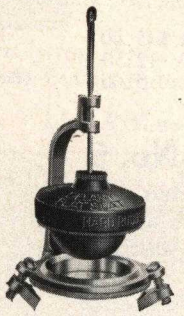
Rex

DELANY Flush Valves, diaphragm type, made in four models embracing every requirement of style, use and price.

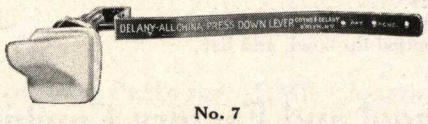
DELANY Tank Fittings



No. 3—Delany Valve



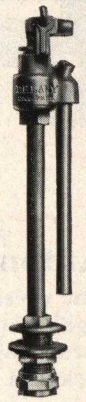
Delany Valvette



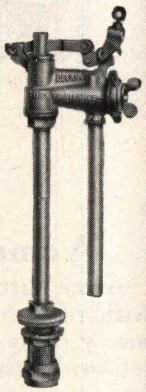
No. 7

No. 7 DELANY Press Down Lever

All China Lever with simple press down action. One pin assembly. Will not stick or turn in Tanks.



No. 115 Delany Ball Cock



Turn-To-Silence Ball Cock

No. 3 DELANY Valve

The DELANY Valve is equipped with a Hard Rubber Ball, integral Guide Post, and other exclusive features to assure perfect operation.

DELANY Valvette

A permanent repair valve. Clamps on to the old valve. Equipped with the DELANY Hard Rubber Ball.

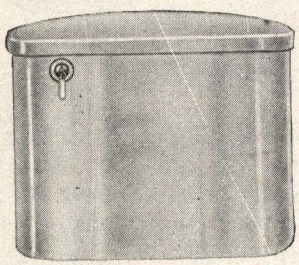
No. 115 DELANY Ball Cock

A real quiet Ball Cock. No. 115A furnished with 1-inch longer shank. The patented leverage is remarkably smooth and efficient. One pin assembly.

Turn-To-Silence Ball Cock

This Ball Cock will, by simply turning a thumb screw regulators, give silence at any pressure and, at the same time, give maximum volume of water.

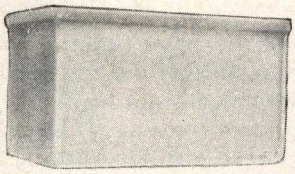
Molded Tanks and Seats



No. 10

No. 10 DELANYITE Low Tank

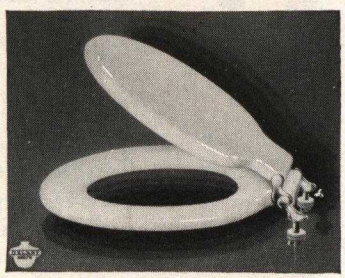
A composition Tank of great strength and durability, white celluloid finish, fitted with DELANY fittings and all trimmings. 7-gallon capacity.



No. 179

No. 179 DELANYITE High Tank

8-gallon capacity, fitted with Return Bend Valve, DELANY Ball Cock, Cross Bar Lever and Stand 4x5-inch Float, N. P. Links and Pull.



No. 50

No. 50 DELANY Molded Seat

A one-piece molded Seat. The white pyroxlyn finish is an integral part of the molded Seat. Furnished in black, blue, green, orchid and canary.

THE I-X-L PUMP & MFG. CO., INC. PHILADELPHIA, PA.

959-961 North 9th Street
SALES REPRESENTATIVES
Hugh W. Powel, 387 Spring St., N. W., Atlanta, Ga.
Maurice S. Spitz, 558 Little Bldg., Boston, Mass.

I-X-L Closets Meet Every Requirement

Frost Proof Closets

Guaranteed Five Years



Plate 82

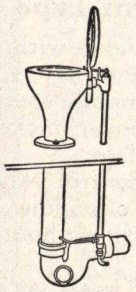


Plate 114

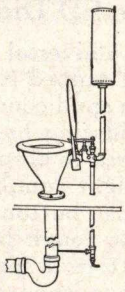


Plate 119

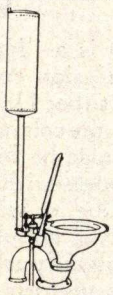


Plate 302

Plate 82 Frost Proof Closet

Enameled Inside Tank, Painted Aluminum Outside; Tall Oval Enameled Inside Roll Rim Hopper, Painted Black Outside; Oak Self-raising Seat; I-X-L Pitless Valve; I-X-L Plate 1130 Hopper Flange with Bolts.
Soil Pipe and Trap not included.
No pit required.

Roughing Measurement

Center of Hopper Outlet to finished Wall, Inches..... 13½

Plate 114 Direct Flushing Frost Proof Closets

Tall Round Enameled Inside Roll Rim Hopper, Painted Black Outside; I-X-L Plate 1130 Iron Flange and Bolts; Self-raising Oak Seat; I-X-L Direct Flushing Frost Proof Valve.
No pit required.

Roughing Measurement

Plate 114—Center of Hopper Outlet to Wall, Inches..... 14

Plate 119 Frost Proof

8x24-inch Galvanized Pressure Tank; 1¼x24-inch Galvanized Flush Pipe; Tall Oval Enameled Inside Roll Rim Hopper, Painted Black Outside; I-X-L Plate 1130 Iron Flange and Bolts; Self-raising Oak Seat; I-X-L Pressure Frost Proof Valve.
No pit required.

Roughing Measurement

Center of Hopper Outlet to Wall, Inches.... 18
By off-setting Flush Pipe, can be roughed-in 3 inches closer.

Plate 302 Pressure Closet with Frost Proof Valve

8x24-inch Galvanized Pressure Tank; 1¼x24-inch Galvanized Flush Pipe; Short Oval Enameled All Over Roll Rim Hopper and "S" Trap; Self-raising Oak Seat; I-X-L Pressure Frost Proof Valve.
No pit required.
Can be supplied with Enameled Inside Hopper and Trap.

Roughing Measurement

Trap Outlet should be swung 6 inches off-center to right or left to pass Valve pipe, bringing Center of Trap to Outlet from Wall, Inches..... 8

Low Seat Action Closets

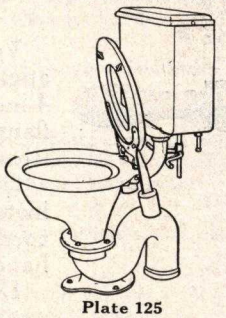


Plate 125

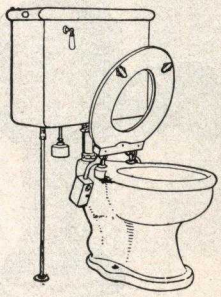


Plate 135

Plate 125 "Factory" Seat Action Closet

Galvanized Cast Iron Tank with Lid Bolted on, fitted with I-X-L "Factory" Trimmings with Galvanized Flush Connection; Enameled All Over Short Oval Roll Rim Hopper with Enameled All Over "S" Trap; Self-raising Heavy Oak Seat with Galvanized Counter-balance Weight; ⅜-inch I. P. S. Supply Tail Piece connection.
Can be supplied with Enameled Inside Hopper and Trap.

Roughing Measurements

Center of Trap Outlet to Wall, Inches..... 3
Center of Flush to Supply, Right-Hand Side, Inches..... 6½
Center of Supply to Wall, Inches..... 4¾

Plate 135 "Public" Seat Action Closet

Enameled All Over Cast Iron Tank with Lid bolted on. Fitted with I-X-L "Public" Trimmings with N. P. Flush Connection, N. P. Supply Pipe and Flange; Vitreous China Syphon Jet Closet with Brass Floor-plate, Bolts and Gasket; Self-raising Heavy Oak N. P. Box Hinge Seat with Galvanized Counter-balance Adjustable Weights.
Furnished with or without Top Side Lever.

Roughing Measurements

Center of Closet Outlet to Wall, Inches..... *10½
Center of Flush to Supply, Left-Hand Side, Inches..... 7½
Center of Supply to Wall, Inches..... 2½
*Based on Closet with 6½-inch measurement from center of Inlet to Outlet.

Pressure Seat Action Closets

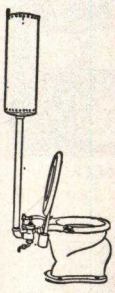


Plate 300

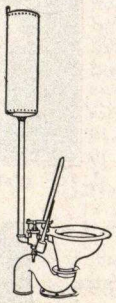


Plate 301



Plate 310

Plate 310 Pressure Seat Action Closet

8x24-inch Galvanized Pressure Tank; Galvanized Tank Shelf; 1¼-inch O. D. N. P. Flush Pipe; I-X-L Plate 320 N. P. Pressure Valve; Special Vitreous China Syphon Jet Closet with Brass Floor-plate, Bolts and Gasket; Self-raising Heavy Oak N. P. Brass Box Hinge Seat with Galvanized Counterbalance Adjustable Weights.
Also furnished with Chromium-plated or Gun Metal-plated brass work.

Roughing Measurements

Center of Closet Outlet to Wall, Inches... 13
Center of Flush to Supply, Left-Hand Side, Inches..... 5
Center of Supply to Floor, Inches..... 25½

High Seat Action Closets

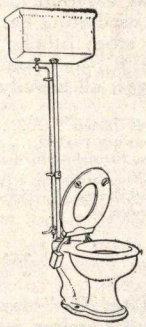


Plate 351

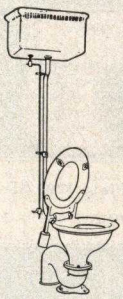


Plate 352

Plate 300 Pressure Closet

8x24-inch Galvanized Pressure Tank; 1¼x24-inch Galvanized Flush Pipe; Vitreous China Special Syphon Action Closet with Brass Floor-plate, Bolts and Gasket; Self-raising Oak Seat; I-X-L Plate 304 Red Brass Pressure Valve.

Roughing Measurements

Center to Center Outlet to Wall, Inches..... 16½
Supply Connection, I. P. S. Tail Piece, Inches..... ⅜
Also furnished:
Center of Closet Outlet to Wall, Inches..... 14½

Plate 301 Pressure Closet

8x24-inch Galvanized Pressure Tank; 1¼x24-inch Galvanized Flush Pipe; Short Oval Enameled All Over Hopper, with Enameled All Over "S" Trap; Self raising Oak Seat; I-X-L Plate 304 Red Brass Pressure Valve.
Also furnished with "P" Trap to Wall.
Hopper and Trap also furnished Enameled Inside.

Roughing Measurements

Center of Trap Outlet to Wall, Inches..... 5¼
Supply Connection, I. P. S. Tail Piece, Inches..... ⅜

Plate 351 "Suro" Seat Action Closet

Enameled All Over Cast Iron Eight-gallon Tank fitted with I-X-L Plate 354 "Suro" Fittings, Plate 552 Ball Cock with Rod and Hard Rubber Float; 1¼-inch O. D. N. P. Straight Flush Pipe with Holder: Nickel Plated Operating Rod with N. P. Holder; Vitreous China Syphon Jet Closet with Brass Floor-plate, Bolts and Gasket; Self-raising Heavy Oak N. P. Brass Box Hinge Seat with Galvanized Counter-balance Adjustable Weight.

Roughing Measurements

Center of Closet Outlet to Wall, Inches..... *10
Supply Connection, I. P. S. Bent Tail Piece, Inches..... ⅜
*Based on Closet with 6½-inch measurement from center of Inlet to Outlet.

Plate 352 "Suro" Seat Action Closet

Enameled All Over Cast Iron Eight-gallon Tank fitted with I-X-L Plate 354 "Suro" Fittings, Plate 552 Ball Cock with Rod and Hard Rubber Float; 1¼-inch O. D. N. P. Flush Pipe, N. P. Holder and Slip Joint Ell; Nickel Plated Operating Rod with N. P. Holder; Short Oval Enameled All Over Roll Rim Hopper with Enameled All Over "S" Trap; Self-raising Heavy Oak Seat with Galvanized Counter-balance Weight.

Roughing Measurements

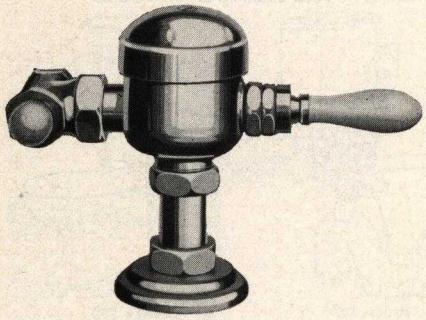
Center of Trap Outlet to Wall, Inches..... 3
Supply Connection, I. P. S. Bent Tail Piece, Inches..... ⅜

Established 1896

THE PHILIP HAAS COMPANY DAYTON, OHIO

Main Office and Factory—123 North Webster Street

Haas Flush Valves



Valve SD—Diaphragm Type

Valve SD Diaphragm Type

Valve SD is a "Haas" Universal Flush Valve with ground joint union angle compression control tapped for 1-inch supply; rubber seat bumper; 4-inch flush tube; 1¼-inch spud connection, or size specified; wall and spud flanges and porcelain oscillating handle. Finish, nickel-plate, highly polished. Can also be furnished in chromium plate.

Other models with straight compression control valve, or with flush ell instead of tube, or with push button instead of handle, also shown. Utility corridor valves supplied in rough brass finish without flush tube. Metal handles or metal push buttons if specified.

Delivers a uniform flush, without waste of water, at any pressure from 5 pounds to 100 pounds. Requires liberal supply piping of 1-inch or more. Further details in catalog.

List Price

Nickel Plated $16.50
Chromium Plated 18.50



Plate 104

Plate 104 Diaphragm Type

Plate 104—Push Button type is furnished with control or shut-off valve integral with the valve proper. **Can also be furnished with independent shut-off.** Also made with metal or china oscillating handle (front or side). Back inlet 1¼-inch flush connection 8½ inches long for top spud bowl, wall and spud flanges.

List Price

Nickel Plated ..... $12.00 Chromium Plated $14.00

If for back spud bowl (valve with 1¼-inch O. D. x 4 x 6-inch ell) specify Plate 104-L.

List Price

Nickel Plated ..... $13.00 Chromium Plated $15.00



Plate 1200 SD

Plate 1200SD

Plate 1200SD with "Haas" Universal Flush Valve includes flush valve with porcelain oscillating handle; angle union compression stop; rubber seat bumper; 4-inch flush tube; 1¼-inch spud connection; wall and spud flanges; all heavily nickeled and polished.

List Price
Nickel Plated $16.50
Chromium Plated 18.50
Also furnished for back spud bowl.

Valve furnished with 1¼-inch O. D. x 4 x 6-inch Nickel Plated ell. Specify Plate 1200 LD. Prices same as above.

Plate 1200LG

Plate 1200LG with "Haas" Universal Flush Valve includes valve with porcelain oscillating handle; straight union compression stop; 4x6-inch flush ell and spud connection for 1¼-inch spud; wall and spud flanges; all heavily nickeled and polished.

List Price
Nickel Plated $16.50
Chromium Plated 18.50



Plate 1200LG



Plate 205

Plate 205

Plate 205 "Haas" Universal Seat Action includes siphon jet bowl, two-piece oak seat with malleable galvanized hinge and "Haas" Universal Seat Action Valve with Angle Compression Stop in rough nickel finish.

List Price, complete $52.30
Can be furnished less bowl.
List Price, less Bowl 33.50
List Price in polished nickel plated finish, less bowl 39.50
List Price, chromium plated, less bowl 43.50
Can be equipped with hard rubber seats.

Note—When ordering this combination less bowl, be sure to give us the size of the spud, and also distance from center of spud to center of seat-post holes.

Also furnished complete with back spud wash down bowl. Specify Plate 200.
List Price $43.50
List Price, less bowl, same as for Plate 205.

Plate 106P

Plate 106P includes vitreous china, extra heavy, siphon jet closet bowl with integral seat and heavy angle base bolted to wall and floor; Utility Corridor valve in rough brass finish (unless otherwise specified) with necessary wall supports and fasteners.

Bowl can be supplied with outlet through wall or floor as desired—no bolts included.

List Price, Valve only $13.00
If complete combination is ordered, specify Plate No. 24C.
List Price $81.00



Plate 106P

All Prices Subject to Change Without Notice—All Prices F. O. B. Dayton, Ohio

For further Information see "Haas" Catalogue "C" which will be furnished on request

Haas Automatic Pressure Tank and Frost Proof Closets

Arranged for ⅜-inch Supply (except Frost Proofs ½-inch) and 35-pound Pressure or More

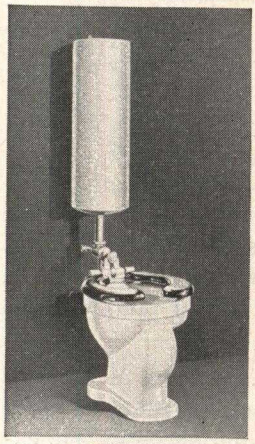


Plate 700

Plate 700

Plate 700 includes "Haas" Master Seat Action Valve in rough nickel finish, open front and back oak seat with galvanized malleable hinge; 8x24-inch galvanized pressure tank and vitreous china washdown bowl with fine jet.
List Price.....$44.70

Plate No. 700 is rough nickel finish, less bowl but with 8x30-inch galvanized tank.
List Price.....$30.00

Plate No. 700 complete as shown except with polished nickel plated valve and polished nickel plated cast brass hinge.
List Price.....$50.70

Plate No. 700 in polished nickel plated finish less bowl but with 8x30-inch galvanized tank.
List Price.....$36.00

For angle stop and supply pipe, add $5.00.
Can be equipped with hard rubber seats.
Tank can be put in elevated position.

NOTE—Requires minimum pressure of 35 pounds maintained at the valve.

Plate 702

Plate 702 includes "Haas" Master Seat Action Valve in rough nickel finish, open front and back oak seat with galvanized malleable iron hinge, 8x30-inch galvanized pressure tank and top spud regular rim vitreous china siphon jet bowl.
List Price.....$49.80

Plate No. 702 in rough nickel finish less bowl.
List Price.....$31.00

Plate No. 702 complete as shown except with polished nickel plated valve and polished nickel plated cast brass hinge.
List Price.....$55.80

Plate No. 702 in polished nickel plated finish, less bowl.
List Price.....$37.00

For angle stop and supply pipe add $5.00.
Can be equipped with hard rubber seats.
Tank can be put in elevated position.

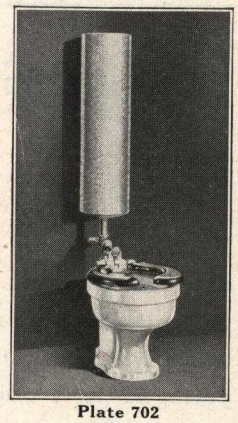


Plate 702

NOTE—Requires minimum pressure of 50 pounds maintained at the valve.



Plate 706

Plate 706

Plate 706 includes "Haas" Master Seat Action Valve in rough nickel finish, open front and back oak seat with galvanized malleable iron hinge, 8x24-inch galvanized pressure tank to be concealed and vitreous china washdown bowl with fine jet.
List Price.....$47.20

Plate No. 706 in rough nickel finish less bowl with 8x30-inch galvanized tank.
List Price.....$32.50

Plate No. 706 complete as shown except with polished nickel plated valve and polished nickel plated cast brass hinge.
List Price.....$53.20

Plate No. 706 in polished nickel plated finish less bowl but with 8x30-inch galvanized tank.
List Price.....$38.50

For angle stop and supply pipe, add $5.00.
Can be equipped with hard rubber seat.

NOTE—Requires minimum pressure of 35 pounds maintained at the valve. This closet can also be furnished for installation with tank off center to avoid soil pipe stack, if specified.

Plate 707

Plate 707 includes "Haas" Master Seat Action Valve in rough nickel finish, open front and back oak seat with galvanized malleable iron hinge, 8x30-inch galvanized pressure tank to be concealed and vitreous china top spud regular rim siphon jet bowl.
List Price.....$55.30

Plate No. 707 in rough nickel finish less bowl.
List Price.....$36.50

Plate No. 707 complete as shown except with polished nickel plated valve and polished nickel plated cast brass hinge.
List Price.....$61.30

Plate No. 707 in polished nickel plated finish less bowl.
List Price.....$42.50

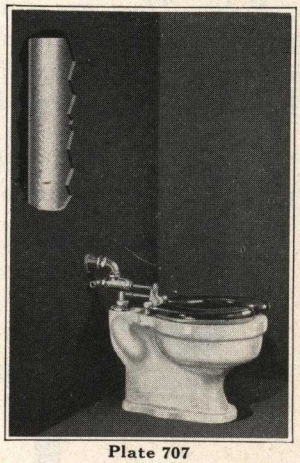


Plate 707

For angle stop and supply pipe, add $5.00.
Can be equipped with hard rubber seat.

NOTE—Requires minimum pressure of 50 pounds maintained at the valve. This closet can also be furnished for installation with tank off center to avoid soil pipe stack if specified.

Plate 760

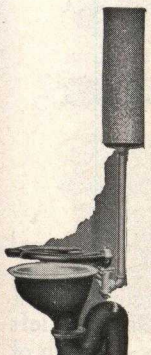


Plate 760

Plate 760—Southern Outfit (not frost proof) includes "Haas" automatic valve with body of highest grade red brass and all working parts of brass; inside enameled flushing rim hopper with either full "S" or "P" trap as specified; 8x24-inch galvanized pressure tank flush tube and sanitary two-piece wood seat with galvanized malleable iron hinge. Hopper and trap enameled all over if specified.

If furnished with Frost Proof Valve specify Plate 761.

List Price, Plate 760.....$31.00
List Price, Plate 761..... 34.00

Add for hopper and trap enameled all over $8.00. Quantity prices on application.



Type H-1 Frost Proof

Type H-1

H-1 Frost Proof (flushes when seat is released), includes red brass hydrant valve, brass working parts, phosphor bronze spring and copper drain tube; porcelain enameled inside hopper to caulk, with integral flushing rim; two-piece birch-mahogany seat with galvanized malleable iron hinge; galvanized pressure tank and flush pipe.

Type H-2

H-2 Frost Proof (flushes while seat is depressed), includes same specifications as H-1, except no tank is required.

H-1 and H-2

Soil pipe and trap not furnished. Can be supplied with hopper enameled white all over (extra) or with solid flange hoppers when specified.

If furnished with tall oval hopper with enameled flushing rim specify Type K-1 or K-2.

List Price, H-1.....$29.00
List Price, H-2..... 17.00
List Price, K-1..... 31.00
List Price, K-2..... 20.50

Quantity prices on application.



Type H-2 Frost Proof

Roughing charts upon request

HEDGES & BROTHER — NEWARK, N. J.

Established 1863

Office and Factory—105-107 South Street

Manufacturers of

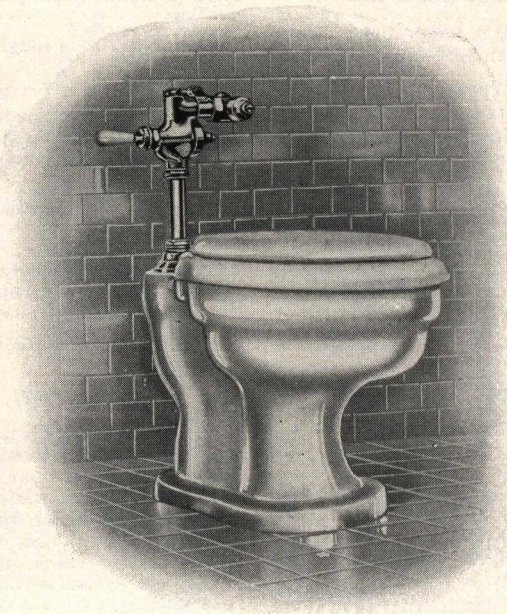
Pilot Flush Valves and Plumbers' Specialties

Pilot Flush Valves

Pilot Flush Valves Nos. 15, 30 and 22 are of the **leather diaphragm type.** They have no tight parts to bind, stick, or which will wear out within five years, no parts which will wear out that cannot be replaced without disconnecting the body of the valve.

Note They are equipped with an air eliminator, and under no conditions will they hammer, chatter or knock.

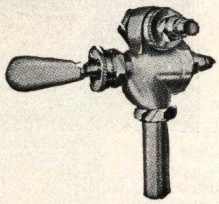
They have a regulating screw to regulate the amount of water required to flush the bowl, which is a water-saving feature, as different types and makes of bowls require different amounts of water to give the proper flush.



Pilot No. 33 Flush Valves are of the piston or plunger type. They are equipped with the exclusive feature—***siphonic drag.*** This feature is that it prevents clogging of the bypass instead of attempting to cure this evil with the so-called "self-cleansing bypass."

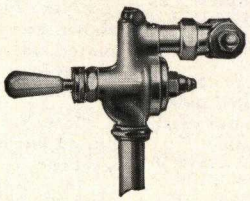
Pilot Flush Valves can be equipped with a vacuum breaker if specified.

Plate No. 1



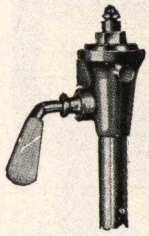
No. 22—Pilot Flush Valve with oscillating handle and integral stop furnished complete with 7 inches of 1¼-inch slip tube spud nut and escutcheon.

Plate No. 2



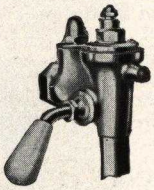
No. 22—Pilot Flush Valve with oscillating handle and angle stop 4¾ off center for right or left hand roughing—7-inch of 1¼-inch slip tube spud nut and escutcheon.

Plate No. 3



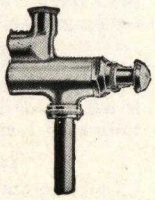
No. 15—Pilot Flush Valve with lever handle. 7-inch of 1¼-inch slip tube spud nut and escutcheon.

Plate No. 4



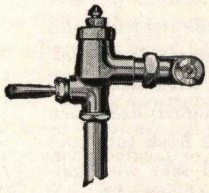
No. 30—Pilot Flush Valve with lever handle and integral compression stop. 7-inch of 1¼-inch slip tube spud nut and escutcheon.

Plate No. 5



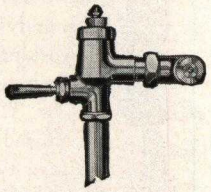
No. 23—Pilot Urinal Valve for stall only; push button type with integral stop for ¾-inch iron pipe connection furnished with 4-inch of ¾-inch slip tube.

Plate No. 6



No. 33—Pilot Flush Valve with oscillating handle and angle stop 4¾ off center for right or left hand roughing—7-inch of 1¼-inch slip tube spud nut and escutcheon.

Plate No. 6-Two-A



No. 33—Pilot Urinal Valve with oscillating handle and angle stop 4¾ off center for right or left hand roughing—4-inch of ¾-inch slip tube and escutcheon.

Catalog Prices and Discounts Furnished on Request.

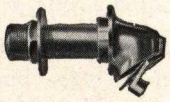
Pilot Adjustable Spreaders and Strainers

Plate No. 6



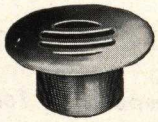
Pilot adjustable Urinal Stall Spreader. Spray can be adjusted to meet the requirements of the stall. Made in ¾-inch and 1-inch. Adjustment will not split spray.

Plate No. 7



Pilot Back Supply Urinal Stall Adjustable Spreader. Inlet tapped for ¾ or ½-inch I. P. Spray can be adjusted to meet the requirements of the stall. Adjustment will not split spray.

Plate No. 12
Diameter 4⅝-inch



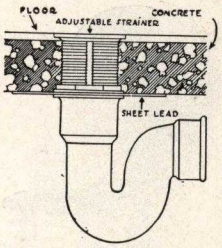
Pilot Slot Sink Strainer. For enamel, iron, porcelain or vitreous china slop sink.

Plate No. 18
4x4-inch Square Top



Length of Shank 2½ inches.

Adjustable Shower Trap and Strainer

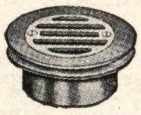


2-inch I. P.

Plate No. 20
For Tile Floor
Diameter 5 inches



Plate No. 18
Standard
Diameter 4⅜ inches



Length of Shank 1¾ inches.

Plate No. 18
Special
Diameter 4⅜ inches



Length of Shank 2½ inches.

Plate No. 18
Bee Hive Standard
Diameter 4⅜ inches



Length of Shank 1¾ inches.

Plate No. 18
Bee Hive Special
Diameter 4⅜ inches



Length of Shank 2½ inches.

No. 18 and No. 20 for 2-inch I. P., 2-inch L. P., 3-inch I. P., 3-inch L. P.

Plate No. 16AA
Bee Hive China Top
Diameter 4½ inches



Plate No. 15AA
Bee Hive China Top
Diameter 4½ inches

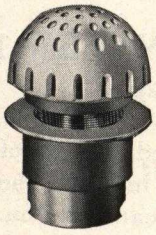


Plate No. 14AA
Bee Hive China Top
Diameter 4½ inches



Plate No. 10AA
Bee Hive China Top
Diameter 4½ inches



Plate No. 9AA
Bee Hive China Top
Diameter 4½ inches



Plate No. 16A
Flat China Top
Diameter 4½ inches



Plate No. 15A
Flat China Top
Diameter 4½ inches



Plate No. 14A
Flat China Top
Diameter 4½ inches



Plate No. 10A
Flat China Top
Diameter 4½ inches



Plate No. 9A
Flat China Top
Diameter 4½ inches



Plate No. 16
Nickel Plated Top
Diameter 4½ inches



To Caulk in 3-inch Cast Iron Hub.

Plate No. 15
Nickel Plated Top
Diameter 4½ inches



To Solder 3-inch Lead Pipe.

Plate No. 14
Nickel Plated Top
Diameter 4½ inches



To Slip and Caulk 2-inch Steel and Cast Iron Pipe, also solder 2-inch Lead Pipe.

Plate No. 10
Nickel Plated Top
Diameter 4½ inches



Furnished with 2-inch and 3-inch Iron Pipe Threaded Thimble, also Thimble to solder 2-inch and 3-inch Lead Pipe.

Plate No. 9
Nickel Plated Top
Diameter 4½ inches



To Solder 2-inch Lead Pipe only.

5" Metal Grid or Metal Bee Hive Top Can Be Furnished with Plate No. 9, 10, 14, 15, 16

Write for Prices and Discounts

JOSEPH A. VOGEL CO. WILMINGTON, DELAWARE

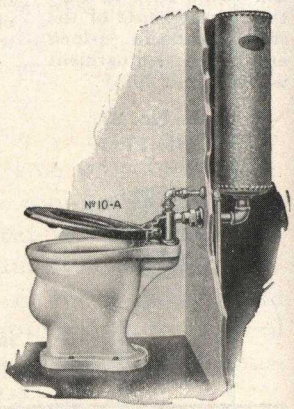


Vogel Number Ten Seat-Action Closet with drum-shaped tank

VOGEL Number Ten Seat-Action Closet

Designed especially for installation in schools, factories, institutions, comfort stations, waiting rooms, and all public and semi-public places.

This outfit combines durability with good looks, and, because of its construction throughout, will stand the hardest kind of use and abuse. For instance, all moving parts made of tough bronze. The bowl is two-fired vitreous china, finished in a flawless glaze, and the seat is hard rubber composition.



Vogel Number Ten-A Closet with concealed tank

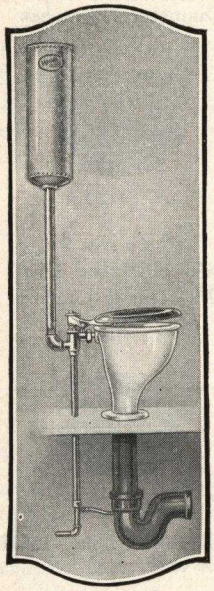
Juvenile height bowl can be supplied, and either open front or closed seat. Cylindrical or round tank can be furnished. Every outfit is tested thoroughly before being shipped.

A Vogel Number Ten Closet on an Endurance Test since July 16, 1929 has flushed 457,165 times, and only one washer has been renewed. The Test continues indefinitely.

LIST PRICE.....$45.00
LIST PRICE (Vogel Number Ten A with Tank concealed)..... 48.00

VOGEL Frost-Proof Closet Outfits—Number 1 and the new VOGEL Number 4

These two closets operate on the same principle—the Vogel patented frost-proof valve—and differ only in certain refinements on the Number Four. For instance, the bowl of the Number Four is vitreous china whereas the Number One is enameled iron. The tank of the Number Four is drum type and lower down than the cylindrical tank on the Number One.



Vogel Number One Frost-Proof Closet

Both outfits are economical in operation, using but four gallons of water at a flush, and with the dependable Vogel valve can never freeze, no matter how cold the weather. The Number Four is the latest addition to the Vogel line. Bowl is vitreous china—top supply.

Number One. Enameled inside—red outside—tall oval flushing rim, enameled rim hopper, reinforced hardwood seat, galvanized pressure tank, flush pipe, lead waste connection, supply and flush valves assembled with 3-ft. 3-in. valve rod casing.

LIST PRICE.....$30.00

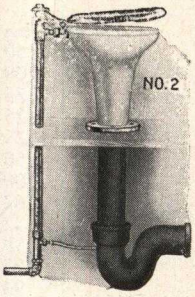
Number Four. Vitreous china oval bowl with top supply and galvanized drum type pressure tank, reinforced hardwood seat, flush pipe, lead waste connection, supply and flush valve assembled with 3-ft. 3-in. valve rod casing.

LIST PRICE.....$33.00

Trap and soil pipe not included.



Vogel Number Four Frost-Proof Closet with vitreous china bowl and low-down drum shaped tank



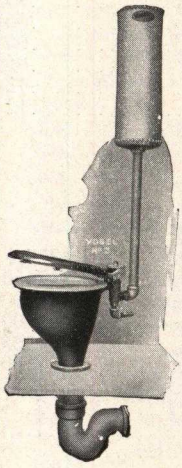
VOGEL Frost-Proof Closet Outfit Number 2

This outfit contains but one packing and flushes while in use, after which no water remains in fixture above trap.

Number Two. Enameled inside, red outside, enameled rim hopper, with brass fan wash, hardwood seat, lead waste connection; valve assembled with 3-foot 3-inch valve rod and casing.

List Price $17.50

(Trap and soil pipe not included.)



VOGEL Number 3—Southern Outfit

(*Not Frost-Proof*)

Will stand the test of time with very little leakage or repairs.

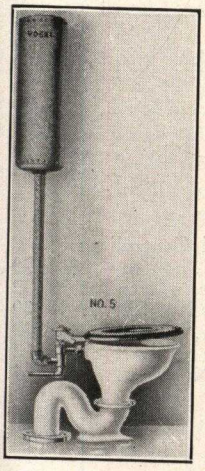
Vogel Number Three, enameled inside, red outside, tall oval flushing rim, **enameled rim** hopper, reinforced hardwood seat, galvanized pressure tank, flush pipe, heavy brass flush valve.

List Price $25.00

When ordering, specify whether outfit with Flanged Bowl or Bowl for caulking into soil pipe is desired.

Soil Pipe Trap not included with the outfit.





VOGEL Number 5—Factory Closet Outfit

A Durable Water Closet for Factory Use

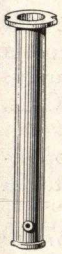
Vogel Number Five, enameled flushing rim hopper with S trap, enameled inside only, reinforced hardwood seat, heavy brass pressure flush valve, galvanized pressure tank, flush pipe and fitting.

List Price $30.00

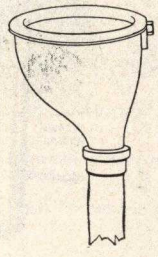
For bowl and trap enameled outside, add list 8.75

No. 1 Frost-Proof Valve can be used in connection with this bowl, making outfit semi-frost-proof.

Outfits furnished with flanged S trap, one-half S, three-quarters S, or S trap for caulking.



Special Equipment for Vogel Closet Outfits

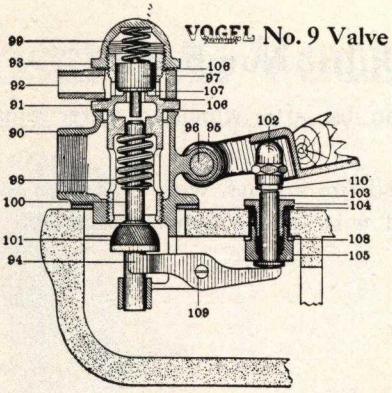


Flanged soil pipe 2 feet 8 inches for regular length valve, list $4.50

Counter weighted seat for Outfits Nos. 1, 2, 3 and 5, add list 1.32

Counter weighted seat for Outfit No. 10, add list 4.70

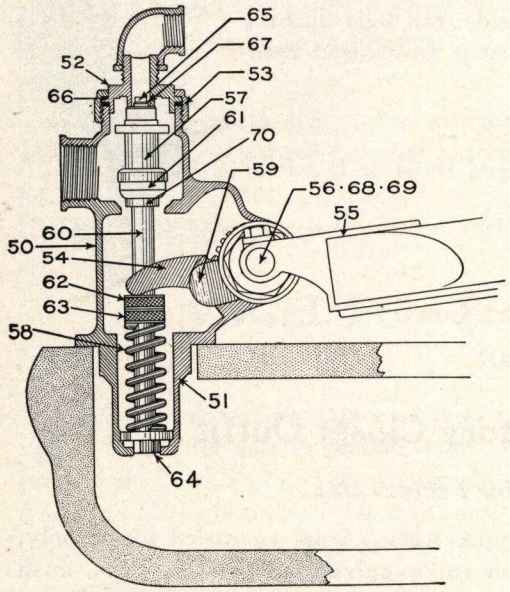
Outfits with hoppers having four-inch outlets for caulking into bell end of soil pipe at same list prices. Valves furnished any length up to five feet at no additional cost.



No.	List Price
9—Special syphon action vitreous bowl	$18.00
9—Galvanized tank	7.50
9—Golden oak varnish finish seat, wood only	3.12
9—Golden oak varnish finish seat, complete	5.75
9—Golden oak open-front seat, wood only	4.12

VOGEL Number 9 Valve

	List Price
Valve complete for No. 9	$17.50
No. 90—Valve body for No. 9	5.00
No. 91—Flush plug for No. 9 valve	2.75
No. 92—Brass ring supply inlet	1.25
No. 93—Valve cap	1.25
No. 94—Valve operating lever	.50
No. 95—Seat hinge lever and bracket	2.00
No. 96—Seat hinge bolt	.62
No. 97—Supply valve piston	.32
No. 98—Flush valve spring for No. 9	.38
No. 99—Supply valve spring	.32
No. 100—Flush valve stem	.94
No. 101—Rubber flush valve packing for No. 9	.06
No. 102—Valve operating adjustable nut	.32
No. 103—Valve operating adjustable rod	.32
No. 104—Bushing guide for operating rod	.25
No. 105—Cap guide for operating rod	.25
No. 106—Fibre coupling packing	.06
No. 107—Supply valve packing	.06
No. 108—Fibre coupling packing	.06
No. 109—Valve operating lever screw	.12
No. 110—Lock nut for adjustable rod	.12

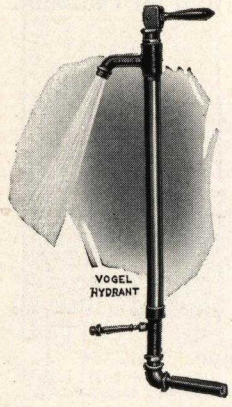


VOGEL Number 10 Valve

	List Price
Valve complete for Number Ten Closet	$17.50
No. 50—Valve body for Number Ten Closet	6.00
No. 51—Bottom valve cage and stem guide	2.00
No. 52—Supply valve swivel	1.25
No. 53—Large top supply coupling nut	1.00
No. 54—Valve operating lever	1.75
No. 55—Seat hinge and brace	2.25
No. 56—Valve operating pinion shaft (attached to seat brace)	1.25
No. 57—Upper section of valve stem	.45
No. 58—Valve spring for Number Ten Closet	.50
No. 59—Shaft through valve operating lever	.40
No. 60—Lower section of valve stem	.60
No. 61—Flush valve packing for Number Ten Closet	.09
No. 62—Adjusting nut on valve stem	.20
No. 63—Lock nut on valve stem	.20
No. 64—Guide nut on bottom of valve stem	.30
No. 65—Supply valve packing screw	.10
No. 66—Fibre coupling ring packing	.06
No. 67—Supply valve packing	.06
No. 68—Large packing nut on pinion shaft	.90
No. 69—Small packing nut on pinion shaft	.40
No. 70—Ring nut for holding flush valve packing	.10

No. 10—Syphon Action Bowl with Valve assembled, Golden Oak Seat, Galvanized Pressure Tank and Flush Pipe...List Price	$45.00
No. 10—As above with painted enameled tank...List Price	50.00
For furnishing Extended Lip Bowl instead of regular Bowl, add to list	5.00

For Nickel-Plated Supply Pipe, Fittings and Controlling Valve...add to list	$ 7.50
For polished nickel-plated Valve and Seat Hinge...add to list	3.00
Special Syphon Action Vitreous Bowl only, for No. 10	18.00
Galvanized Tank	7.50
Golden Oak Varnish Finish Seat, wood only, for No. 10	3.12
Golden Oak Varnish Finish Seat, complete, for No. 10	5.75



VOGEL Frost-Proof Garage Hydrants

The VOGEL Hydrant is a very efficient means of supplying water to radiator or for washing the car (especially adapted to unheated garages). Also for installation in service stations—on farms—dairies, etc., or any place where a supply of water is needed outside all year 'round.

It has the dependable VOGEL Frost-Proof Supply Valve, with bevel valve seat that will not retain pipe cuttings, sediment, etc. The by-pass is in the plunger, so that when the rod is withdrawn the waterway is straight and clear, with no concealed by-pass in the valve body.

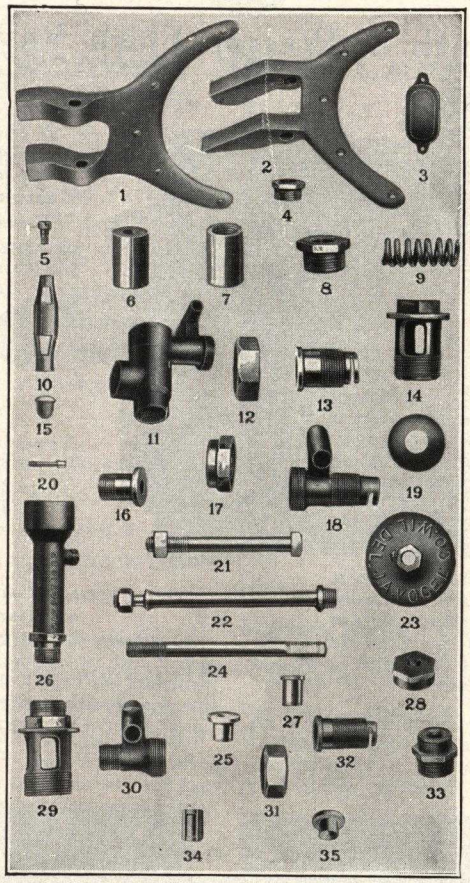
The pipe casing is wrought iron pipe, galvanized. The packing cap is the latest VOGEL patent, by which a uniform pressure is exerted at all times on the packing material.

This hydrant has the endorsement of Water Departments, on account of its positive opening and shutting operation, as it is either held entirely open or positively closed. Made in lengths, 3, 4 and 5 ft.

Price complete with lead waste connection, LIST...$7.50

Replacement Parts for VOGEL

Nos. 1, 2, 3 and 5 Outfits



	List Price
Tall oval enameled rim, Nos. 1 and 3 hopper	$ 8.50
Short oval enameled rim, No. 5 hopper	8.50
Roll enameled rim, No. 2 fan wash hopper	5.25
8-inch x 24-inch Galvanized pressure tank	7.50
Trap, S or ½ S, for No. 5	4.38
Seat, complete with trimmings for Nos. 1, 3 and 5	3.75
Seat, complete with trimmings for No. 2	3.75
Valve and casing, complete for No. 1	13.12
Valve and casing, complete for No. 2	9.50
Valve complete for Nos. 3 and 5	11.38
Golden oak, varnish finish, wood seat only, Nos. 1, 3 and 5	2.25
Golden oak, varnish finish, open front seat, wood only	3.00
Golden oak, varnish finish, wood seat only, No. 2	2.25
C-1—Seat casting for Nos. 1, 3 and 5 and new style for No. 2	1.25
B-2—Seat casting for old style No. 2	1.25
No. 3—Seat buffer	.12
No. 4—Small packing nut for Nos. 1 and 2 old style	.32
No. 5—Brass screw (top of plunger) Nos. 1 and 2	.10
No. 6—Brass socket, tapped one end Nos. 1 and 2	.32
No. 7—Brass socket, tapped both ends for No. 2	$0.32
No. 8—Large packing nut for Nos. 1 and 2 old style	.44
No. 9—Spring for Nos. 1, 2, 3 and 5	.50
No. 10—Small plunger for Nos. 1 and 2	.79
No. 11-1—Upper flush valve body for No. 1	3.75
No. 11-2—Upper valve body for No. 2	3.15
No. 11-5—Large flush valve body for Nos. 3 and 5	3.75
No. 12—Large coupling nut for Nos. 1, 3 and 5	.53
No. 13—1-inch Fan wash swivel for Nos. 1, 3 and 5	.53

	List Price
No. 14—Flush valve plug for No. 1 old style	$1.75
No. 15—½-inch Special Fuller ball for Nos. 1, 2, 3 and 5	.07
No. 16—½-inch Brass swivel, No. 2 old style	.38
No. 17—Coupling nut for same, No. 2 old style	.38
No. 18—Fan wash, hinge fitting for No. 2 old style	1.05
No. 19—Flush valve packing for Nos. 1, 3 and 5	.07
No. 20—Brass screw for Fuller ball for Nos. 1, 2, 3 and 5	.10
No. 21—½-inch brass seat bolt for Nos. 1, 2, 3 and 5	.38
No. 22—Lead waste connection for Nos. 1 and 2	.75
No. 23—Lifting plate for Nos. 1, 2, 3 and 5	.50
No. 24—½-inch Brass lifting rod for Nos. 1, 2, 3 and 5	.50
No. 25—Flanged socket for No. 1	.38
No. 26—Supply valve body for Nos. 1 and 2	1.88
No. 27—Spacer sleeve for No. 1	.32
No. 28—Packing cap, new style, Nos. 1, 2, 3 and 5	.38
No. 29—Flush valve plug, new style, Nos. 1, 3 and 5	1.75
No. 30—Hinge fitting, No. 2 new style	1.05
No. 31—Coupling nut for same, No. 2 new style	.38
No. 32—¾-inch fan wash swivel, No. 2 new style	.63
No. 33—Large packing nut, No. 2 new style	.75
No. 34—Guide sleeve for Nos. 3 and 5	.63
No. 35—Flanged socket for Nos. 3 and 5	.63
No. 36—Lock nut for lifting plate for Nos. 1, 2, 3 and 5	.10
No. 37—Ring nut for flush packing for No. 1	.10
No. 38—Galvanized Iron Valve Rod—regular length—for Nos. 1 and 2	.40
No. 39—Galvanized Iron Casing—regular length—for Nos. 1 and 2	1.00

Roughing Measurements for VOGEL Closets

Nos. 1, 2, 3, 5, 10 and 10-A

No. 1—Closet roughs-in at 16½ inches from wall to center of waste outlet.

No. 2—Closet roughs-in at 11½ inches from wall to center of waste outlet.

No. 3—Closet roughs-in at 16½ inches from wall to center of waste outlet.

No. 5—Closet roughs-in at 6 inches from wall to center of waste outlet. When roughing for No. 5 Closet with ½ "S" Trap the waste outlet should be 10½ inches above floor to center of outlet which is 3½ inches from wall to end of trap.

No. 10—Closet roughs-in at 16 inches from wall to center of waste outlet.

Numbers 1, 3, 5 and 10 Closets can be roughed 3 inches closer by offsetting flush pipes.

No. 10-A—Closet roughs-in at 14 inches from wall to center of waste outlet.

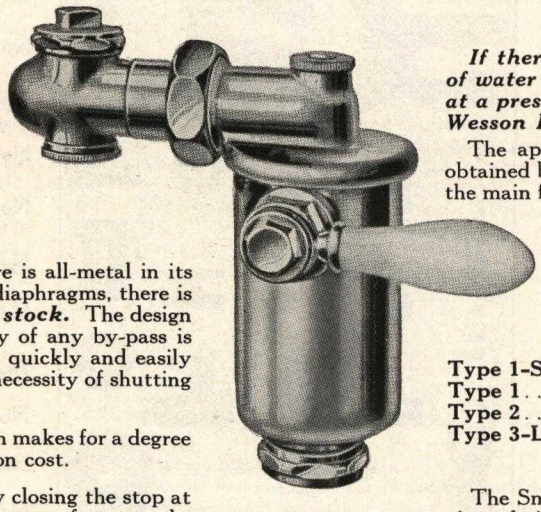
SMITH & WESSON

Flush Valve
Division

SPRINGFIELD, MASS.

Main Office and Factory
55 Stockbridge Street

Smith & Wesson Flush Valve



Adaptability

Smith & Wesson Flush Valves can be used on any standard plumbing fixtures, and are furnished for exposed or concealed installations. ***The valve operates equally well with either hot or cold water.***

Advantages

As the Smith & Wesson Flush Valve is all-metal in its construction, having no packings or diaphragms, there is no deterioration either in service ***or in stock.*** The design of the valve is such that the necessity of any by-pass is done away with. It may be adjusted quickly and easily without special tools and without the necessity of shutting off the main water supply.

It operates on a ¾-inch supply, which makes for a degree of "buyer interest" by lower installation cost.

The valve may be readily drained by closing the stop at the inlet and holding the valve handle open a few seconds. This feature is appreciated by owners of summer hotels in the North, where it is necessary to draw off the water during the winter months. It may be readily seen that the Smith & Wesson Flush Valve will require ***no organized servicing.***

The valve can be furnished in nickel or chromium plate with either white Isolantite or metal handles, and the valve is guaranteed by SMITH & WESSON, who will furnish ***new valves*** on exchange for any which may prove to be defective within five years of the purchase date.

Installation

If there is a flow of not less than 30 gallons of water per minute through the ¾-inch pipe at a pressure not under 15 pounds, a Smith & Wesson Flush Valve will operate satisfactorily.

The approximate pressure at the valve may be obtained by deducting 1 pound from the pressure at the main for each 2 feet that the flush valve is above the main.

Catalogue

Complete catalogue, showing typical installations and roughing-in measurements, will be mailed on request.

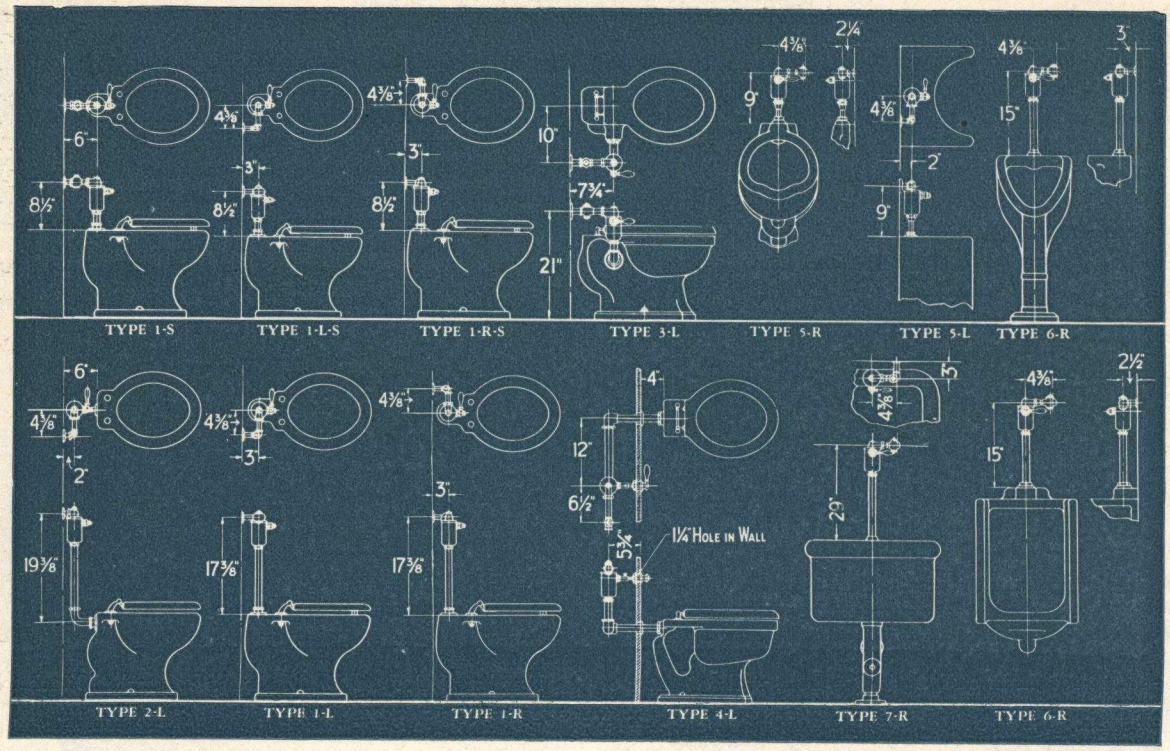
Price List

	Complete		Complete
Type 1-S	**$23.00**	**Type 4-L**	**$26.00**
Type 1	**24.00**	**Type 5**	**23.00**
Type 2	**24.50**	**Type 6**	**24.00**
Type 3-L	**24.50**	**Type 7**	**24.50**

Chromium Plating 10% extra

The Smith & Wesson Flush Valve complete consists of nickel plated valve with ¾-inch ground key stop (angle or straight), white or metal handle, ¼-1 inch outside diameter nickel plated flush connection with nickel plated nut, spud nut, wall and spud flanges. All types can be furnished with right, left, or back inlet supplies, and when ordering the type required should be designated. For concealed installations (Type 4-L), thickness of wall should be given.

Smith & Wesson Flush Valves may be used to replace other makes of valves, and when ordered for this purpose, the center to center measurement of valve to be replaced should be given.



AMERICAN RUBBER PRODUCTS COMPANY

8561 Butler Avenue, DETROIT, MICH.

Bonalite Seamless Sheet Covered Seats

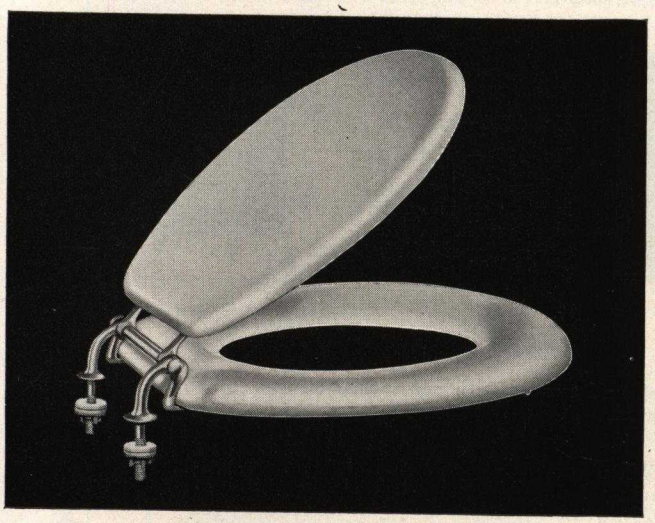
The sheet covering on the Bonalite Seat is really seamless; it is the result of a patented and exclusive process that forms the sheet and applies it to the core in one operation. This elimination of seams that open up and collect dirt, germs and admit moisture is an advantage never before available in a sheet-covered seat. It has great possibilities as a sales feature and will also eliminate all chance of later adjustments and customer dissatisfaction.

Study the sectional view of the Bonalite seat ring shown at the right—note that the sheet cover is 15/1000" or 20/1000" thick; also that the ring is 1⅜". These are important features—be sure to check them when making your comparisons with other seats.

The patented construction of the Bonalite one piece core makes it unusually strong and moisture-proof. It will not warp, split, expand or contract in even the most severe service. The heavy hinge is chromium plated and highly polished. Bonalite Seats are of the best quality in every detail—they are fully guaranteed.



Bonalite Seats are manufactured and sold in Canada by the Canadian Battery and Bonalite Company, Windsor, Ontario.

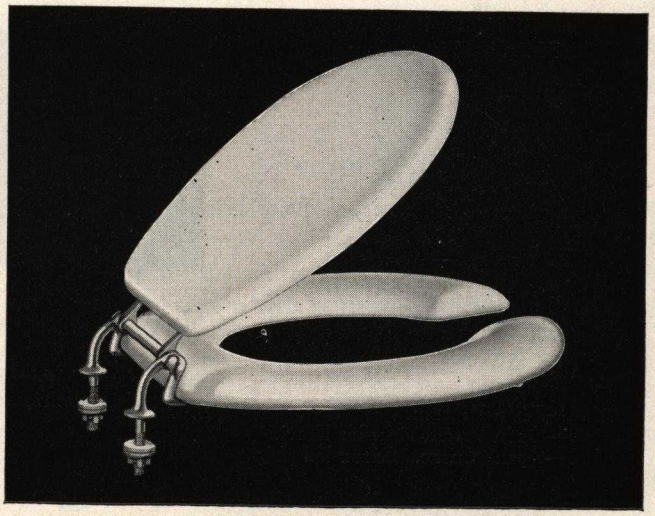


No. 1000—Standard Closed Front Bonalite Seat **with** cover. Sheet covering is 20/1000-inch thick and seamless.

No. 1050—Standard Closed Front Bonalite Seat **without** cover. Sheet covering is 20/1000-inch thick and seamless.

No. M-00—Standard Closed Front M-Grade Bonalite Seat **with** cover. Sheet covering is 15/1000-inch thick and seamless.

No. M-50—Standard Closed Front M-Grade Bonalite Seat **without** cover. Sheet covering is 15/1000-inch thick and seamless.



No. 1001—Standard Open Front Bonalite Seat **with** cover. Sheet covering is 20/1000-inch thick and seamless.

No. 1051—Standard Open Front Bonalite Seat **without** cover. Sheet covering is 20/1000-inch thick and seamless.

No. M-01—Standard Open Front M-Grade Bonalite Seat **with** cover. Sheet covering is 15/1000-inch thick and seamless.

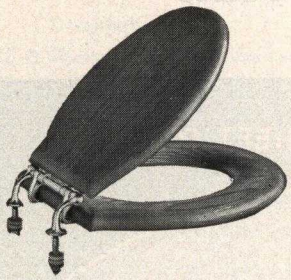
No. M-51—Standard Open Front M-Grade Bonalite Seat **without** cover. Sheet covering is 15/1000-inch thick and seamless.

BENEKE MANUFACTURING COMPANY — CHICAGO, ILL.

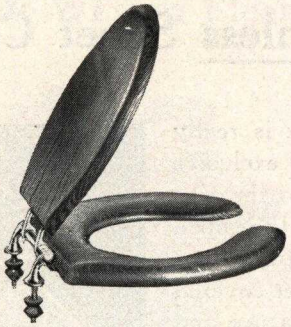
General Offices and Factory—2559 West 21st Street

ROCK WELL

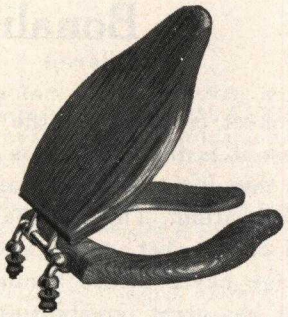
Varnished Seats—In Golden Oak or Mahogany Finish



No. 1401—Plain Pattern

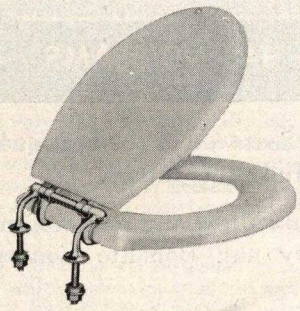


No. 1101—For Regular Bowl

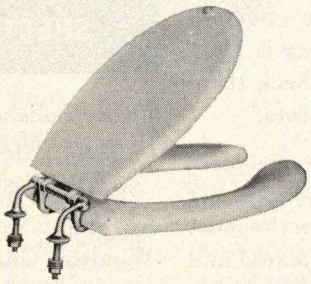


No. 1001—For Extended Lip Bowl

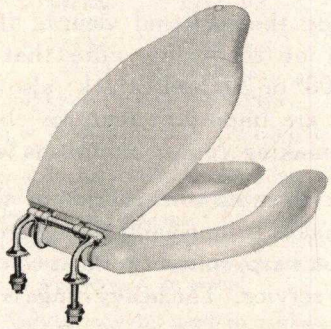
Sheet Covered Seats—In Plain or Pearl Colors



No. 500—Plain Pattern



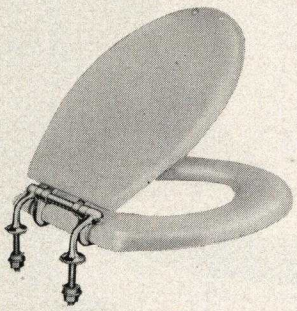
No. 525—For Regular Bowl



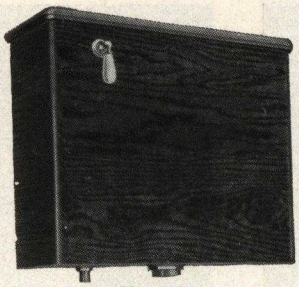
No. 550—For Extended Lip Bowl

Sprayed Seats

Plain and in Colors



No. 600—Plain Pattern.
No. 625—Open Front, Regular Bowl.
No. 650—Open Front, Extended Lip Bowl.



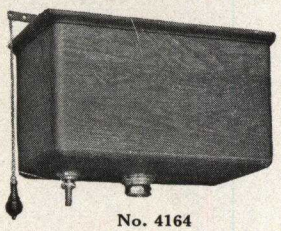
No. 4014

Closet Tanks

No. 4014—Low Tank

No. 4164—High Tank

Furnished regularly in plain or golden oak, gloss finish. With 8-ounce copper lining.



No. 4164

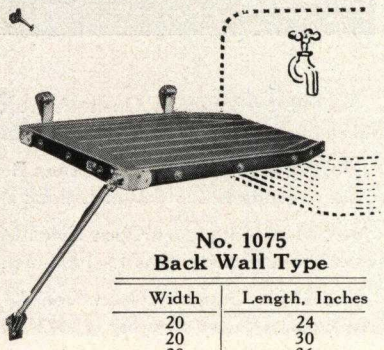
Drain Boards

Made from 1½-inch Ash and treated with our special oil solution. Trimmings are brass, nickel or chrome plated.



No. 1077
Interchangeable Drain Board

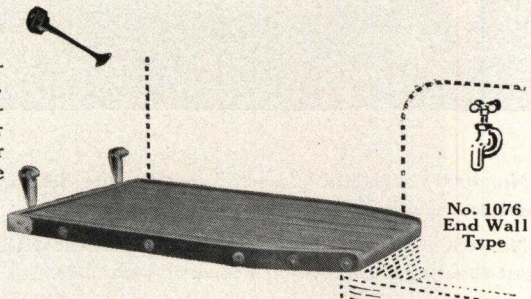
Width	Length, Inches
18	18
20	18
18	20
18	24
20	24
22	24



No. 1075
Back Wall Type

Width	Length, Inches
20	24
20	30
20	36
22	24

When ordering No. 1075 specify whether for right or left hand side of sink.



No. 1076 End Wall Type

No. 1076—End Wall Type

Width	Length, Inches	Width	Length, Inches
22	30	24	36
22	36	26	30
24	30	26	36

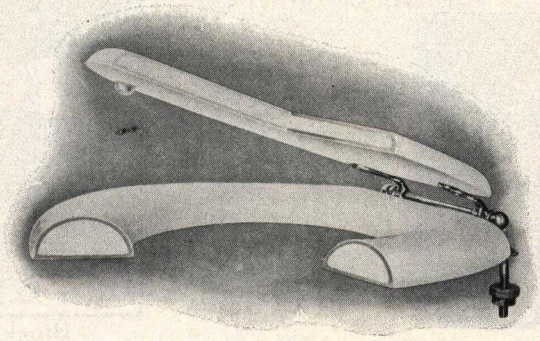
DURO WOOD INDUSTRIES, INC. CAPAC, MICH.

Duro Wood Closet Seats

Strong

Chipless

Color Fast



Moisture Proof

Sanitary

Permanent

"Cut-a-way" View Showing Construction

Construction

Duro Wood Closet Seats are made by a special patented process, with a fibre core surfaced with Duro Ware making the seat a smooth hard surface equal to any hard surfaced seat now on the market.

Strength

Duro Wood Closet Seats are equal in Strength with any toilet seat in its class. Official tests subjecting the seat and its hardware to severe usage proves its remarkable durability.

Moisture Proof

The Duro Wood Closet Seat is water proof and acid proof. The "cut-a-way" view shows how the surface is surrounding the fibre core.

Finish

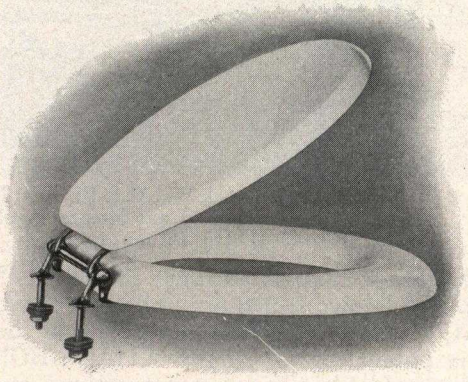
Duro Wood Closet Seats are finished with the finest materials, smooth surfaced, will not turn yellow or chip from the surface under the normal use of a toilet seat, made in white, orchid and green, also Oak or Mahogany in open or closed fronts.

Guarantee

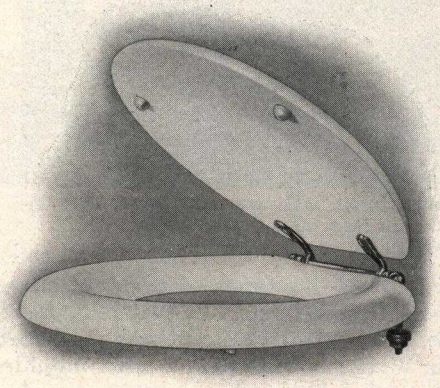
The Duro Wood Closet Seat is sold under a guarantee against any defects in workmanship or materials and will give your customers satisfactory service under the normal use of a toilet seat.

Summary

The Duro Wood Closet Seat is strong, moisture proof, sanitary, permanent, and your trade will find that this is far superior and cannot be compared with the ordinary wooden seat which is glued or pinned together.



Back View



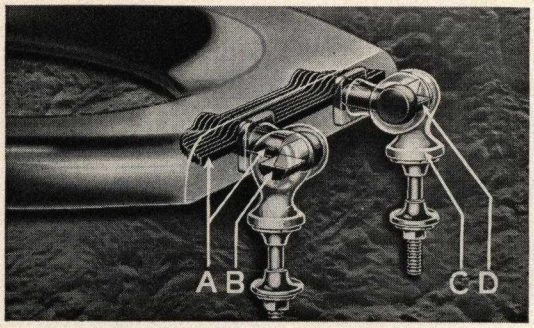
Front View

Prices on Application

THE BRUNSWICK-BALKE-COLLENDER CO., CHICAGO, ILL.

General Offices—623-33 South Wabash Avenue
Representatives in Principal Cities

Brunswick Whale-Bone-Ite Seats with Integral Moulded Hinges



Hinge Construction Open Front and Closed Back Seats

Sanitation

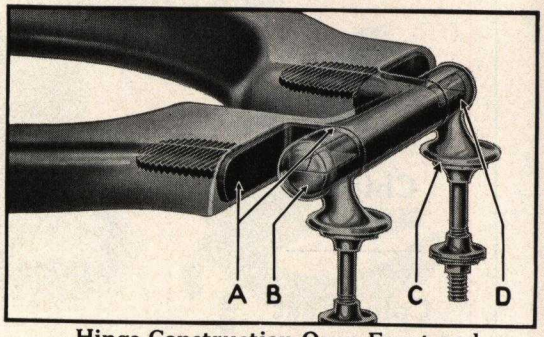
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Strength

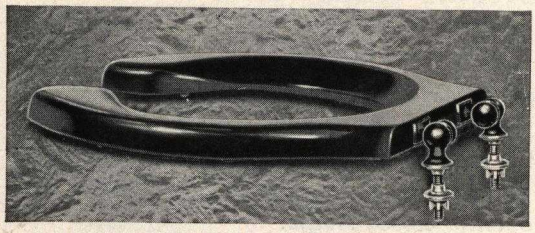
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Beauty in

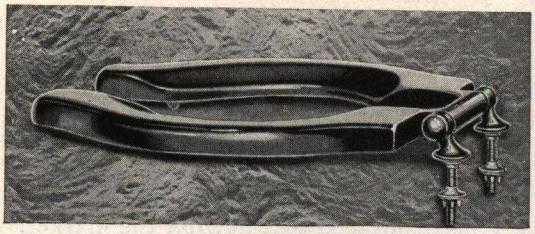
Closet Seats



Hinge Construction Open Front and Open Back Seats



No. 22½-968—For Elongated Bowls
Open front, closed back, seat, no cover, with internal check, and integral moulded hinge.
No. 22½-98—Ditto, without check.



No. 18-568—For Extended Lip Bowls
Open front and back WHALE-BONE-ITE seat, no cover, with internal check and integral moulded hinge.
No. 18-58—Ditto, except without check.

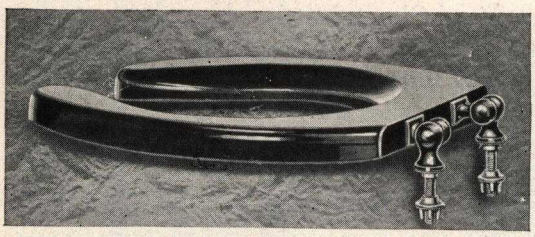
Hinge Construction

A—Heavy metal corrugated hinge plate and post lugs in one piece embedded in laminated core of seat.

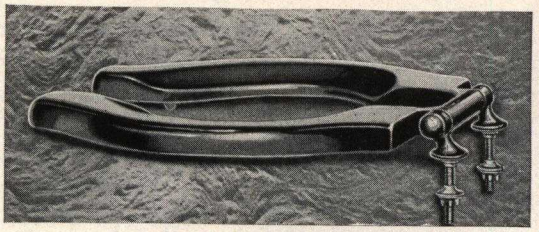
B—Metal post bearing, an integral part of hinge plate.

C—Heavy metal post insert and check lug.

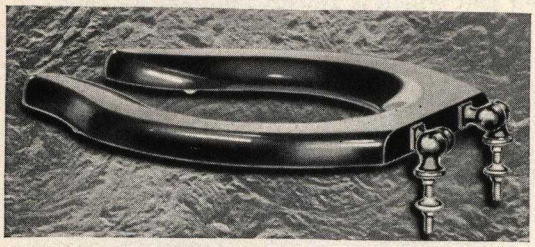
D—Covering of Whale-Bone-Ite over hinge plate, posts, inserts and seat—one solidified unit.



No. 23-968—For Regular Bowls
Open front, closed back, seat, no cover, with internal check and integral moulded hinge.
No. 23-98—Ditto, without check.



No. 182-568—For Elongated Bowls
Open front and back WHALE-BONE-ITE seat, no cover, with internal check and integral moulded hinge.
No. 182-58—Ditto, without check.

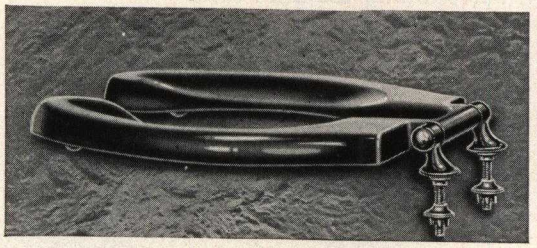


No. 21-968—For Extended Lip Bowls
Open front, closed back, seat, no cover, with internal check and integral moulded hinge.
No. 21-98—Ditto, except without check.

Complete

Catalog

on Request



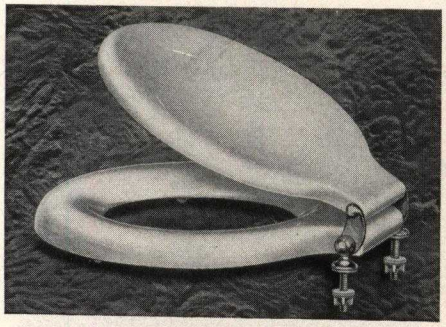
No. 18½-568—For Regular Bowls
Open front and back WHALE-BONE-ITE seat, no cover, with internal check and integral moulded hinge.
No. 18½-58—Ditto, without check.

SANITATION—strength—beauty in closet seats is achieved in this WHALE-BONE-ITE development. The hinge, a heavy metal die casting, and seat are covered with WHALE-BONE-ITE and moulded in one operation under hydraulic pressure producing one solidified unit. No unsanitary crevices—nothing to work loose—impervious to moisture—non-corrosive—unbreakable—it answers all hinge problems.

It is a well-known fact that public toilet seats receive constant, careless slam-bang abuse from the public. But, the public cannot smash WHALE-BONE-ITE. Its unbreakable laminated construction—guaranteed for the life of the building—immediately ends all replacement expense.

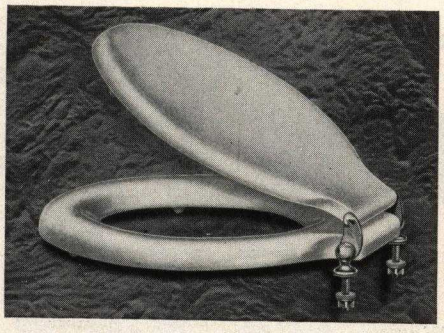
Brunswick White and Colored Seats

For more than 87 years Brunswick has had fair dealings with the American Public. The Du Pont covering on Brunswick White and Colored Seats coupled with Brunswick skill in woodcraft is our guarantee of workmanship and quality. Guaranteed not to crack, chip, craze or discolor.



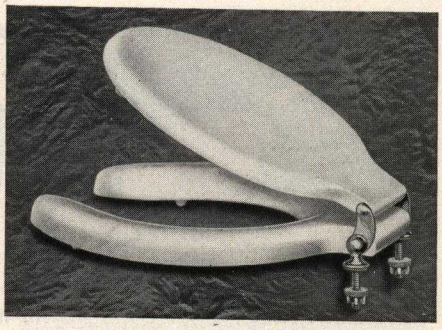
No. 300
Closed front, extended back for regular bowl

No. 300—Seat with cover, no check.
No. 301—Seat without cover, no check.
No. 302—Seat without cover, with check.



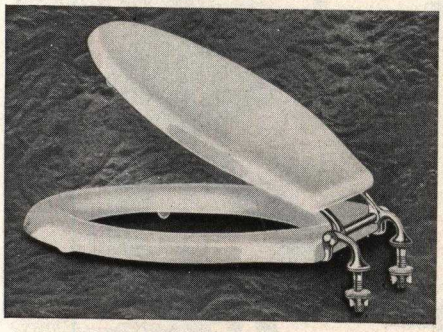
No. 306
Closed front, extended back for elongated bowl

No. 306—Seat with cover, no check.
No. 307—Seat without cover, no check.
No. 308—Seat without cover, with check.



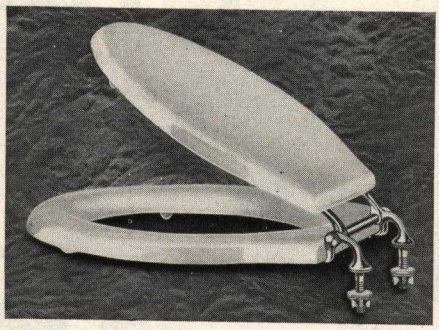
No. 353
Open front, extended back for elongated bowl

No. 353—Seat with cover, no check.
No. 354—Seat without cover, no check.
No. 355—Seat without cover, with check.



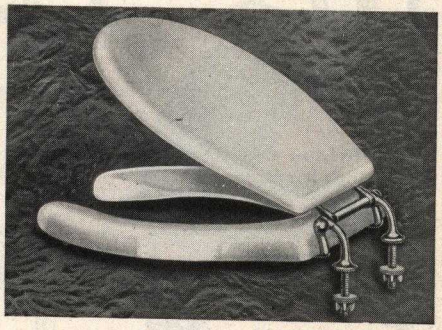
No. 315
Closed front, for regular bowl

No. 315—Seat with cover, no check.
No. 316—Seat without cover, no check.



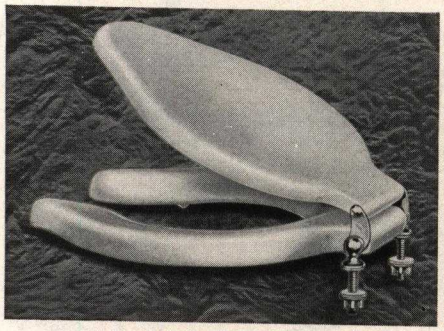
No. 318
Closed front, for elongated bowl

No. 318—Seat with cover, no check.
No. 319—Seat without cover, no check.



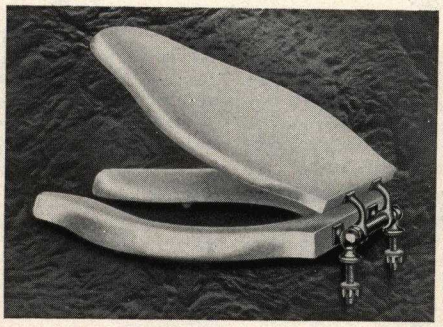
No. 390
Open front, for regular bowl

No. 390—Seat with cover, no check.
No. 391—Seat without cover, no check.



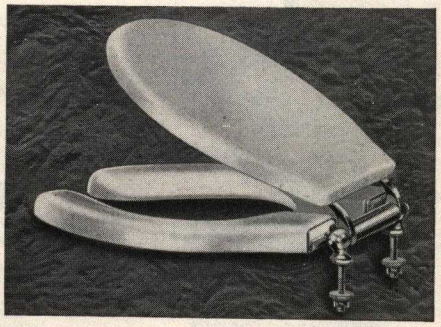
No. 375
Open front, extended back for extended lip bowl

No. 375—Seat with cover, no check.
No. 376—Seat without cover, no check.
No. 377—Seat without cover, with check.



No. 378
Open front, for extended lip bowl

No. 378—Seat with cover, no check.
No. 379—Seat without cover, no check.
No. 380—Seat without cover, with check.



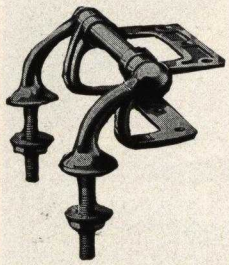
No. 381
Open front and open back for extended lip bowl

No. 381—Seat with cover, no check.
No. 382—Seat without cover, no check.

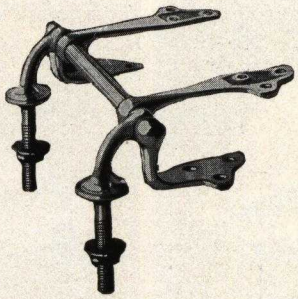
All Brunswick White Seats can be furnished in Plain or Sea Pearl colors. Guaranteed not to crack, chip, craze or discolor. There is a Brunswick seat for every type of bowl. Complete catalog, in color, on request.

GRAND HAVEN BRASS FOUNDRY — GRAND HAVEN, MICH.

Toilet Seat Hinges



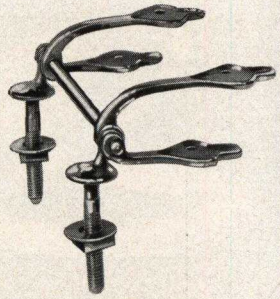
Number 100
½-Inch Bar Hinge



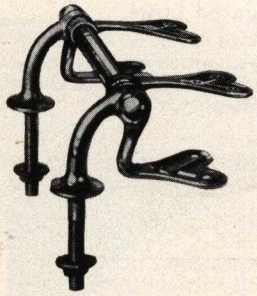
Number 721
7/16-Inch Bar Hinge



Number 771
7/16-Inch Bar Hinge



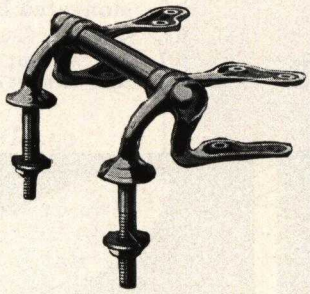
Number 51
Competitive Light Bar Hinge



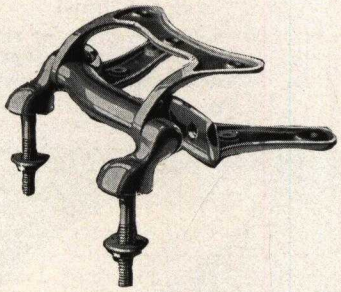
Number 425
½-Inch Bar Hinge



Number 181
½-Inch Bar Hinge



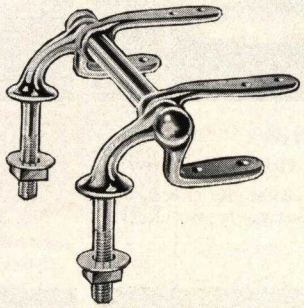
Number 740
½-Inch Bar Hinge



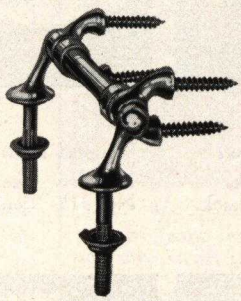
Number 49
Special Heavy Type



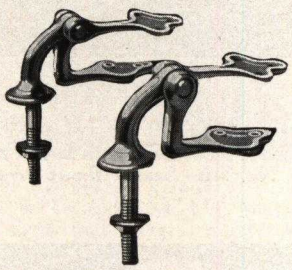
Number 51
Post Hinge



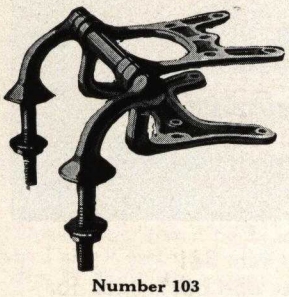
Number 720
½-Inch Bar Hinge



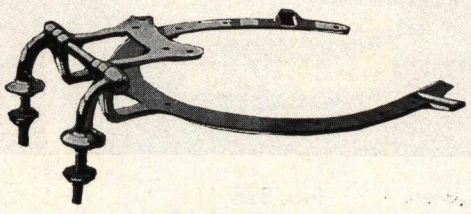
Number 90
½-Inch Bar Hinge
Concealed Type



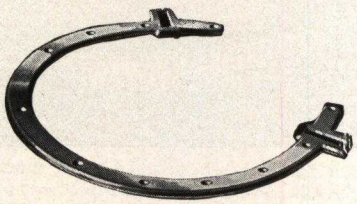
Number 50
Post Hinge



Number 103
½-Inch Bar Hinge



Number 296
Special Light Bar



Number 4
Open Front Reinforcing Plate

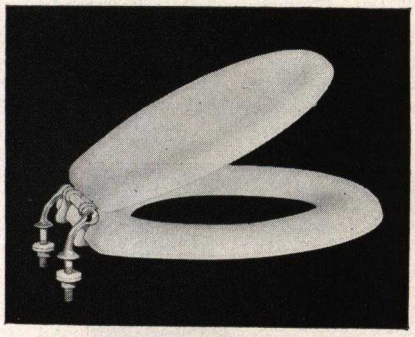
Brass wing nuts and both rubber and steel washers can be furnished.
We can also furnish plates for Extended Lip Seats.

Ask for our catalogue showing our complete line.
Also manufacturers of Plumbers' Brass Goods; and Brass, Bronze and Aluminum Castings.

KNOTT MANUFACTURING CO. TELL CITY, IND.

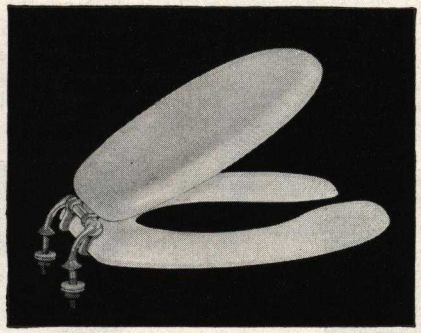
Representatives in All Principal Cities

Atlas Seats and Hinges



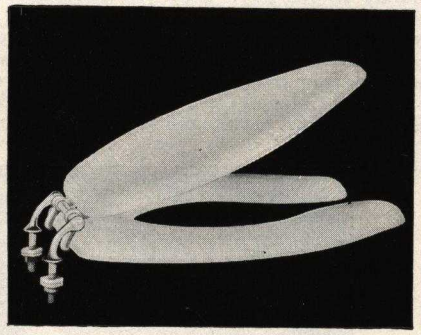
Atlas Seat No. 170

Atlas ring seat for regular bowl. Seat made from full 1¼-inch well seasoned stock. This type is equipped with a ½-inch bar offset hinge. Furnished with or without cover. Colors and finishes listed below.



Atlas Seat No. 470

A high grade open front seat for regular bowl with ½-inch bar offset hinge. Furnished with or without cover. This seat is made from full 1¼-inch well seasoned stock. Colors and finishes listed below.



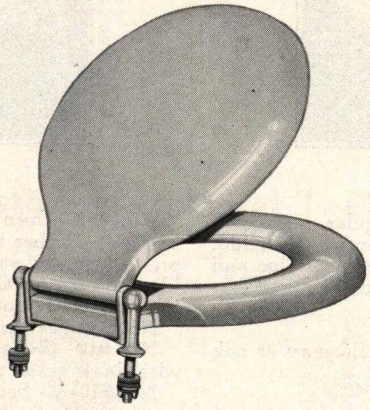
Atlas Seat No. 570

A high grade open front seat for extended lip bowl, with ½-inch bar offset hinge. Furnished with or without cover. Seat made from full 1¼-inch well seasoned stock. Colors and finishes see descriptions below.



Atlas Seat No. 6100

A high grade open front and back seat for regular bowl made from full 1½-inch well seasoned stock with extra heavy brass hinge. Furnished with or without cover. For finishes and colors see descriptions below.



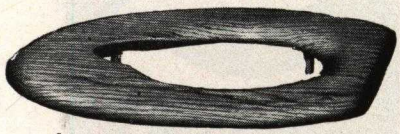
Atlas Seat No. 130

A high grade ring seat and cover for regular bowl, made from full 1¼-inch well seasoned stock with No. 30 hinge. For finishes and colors see descriptions below.



Atlas Seat No. 9110

A ring type seat for regular bowl, with ½-inch bar close ruffin hinge, also has 2½-inch offset. This seat is made from full 1¼-inch well seasoned stock. Furnished with or without cover. For colors and finishes see descriptions below.

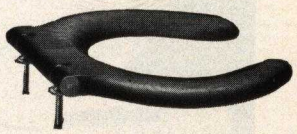


Atlas Seat No. 12

This seat is made especially for children, will fit any of the closed front seats. This type seat is supported by pegs inserted in seat and will not slip. Finishes and colors listed below.

Atlas Seat No. 13

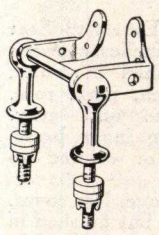
A high grade Atlas open front seat for regular bowl, made from full 1¼-inch well seasoned stock without cover. The hinges are of the concealed type. For finishes and colors see descriptions below.



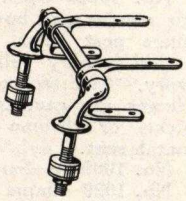
Colors and Finishes

Seats may be obtained in imitation mahogany, golden oak, light oak, lacquer coated, sheet covered or pearl sheet covered.

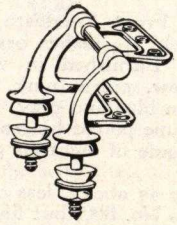
Hinges



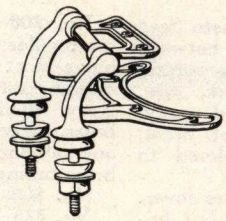
Hinge No. 30



Hinge No. 60, 1¼-Inch Seat



Hinge No. 70 or 75, 1¼ or 1½-Inch Seat



Hinge No. 90, 1½-Inch Seat



Hinge No. 100, 1½-Inch Seat

Write for Catalog Showing Complete Line

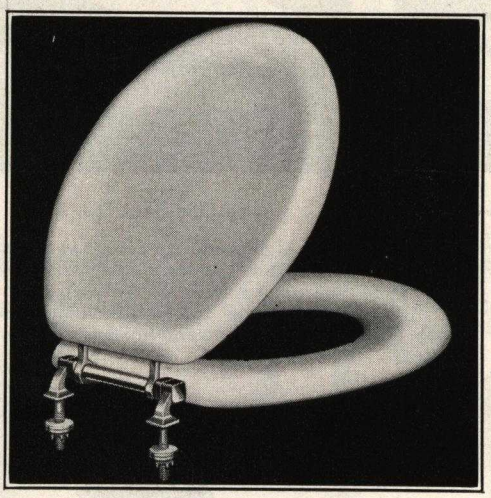
CHARLES A. MILLER COMPANY STURGIS, MICH.

Miller Colonial and Everlasto Seats

Colonial and Everlasto Toilet Seats are made from selected hardwood lumber, thoroughly dried in our own kiln. Grain running all one way. Each seat is reinforced by means of one-half by seven inch spiral hickory dowel pins which are forced into the seat cross grain, making it practically split proof. All open front seats can be furnished with reinforcing ring made from pure ingot brass, nickel or chrome plated, if desired.

The new Colonial Designs offer beautiful Seats that will harmonize with the best bathroom fixtures, yet are priced remarkably low.

All colored and white seats are covered with the well-known Dupont Product. This is a durable finish that will withstand the ordinary abuses to which a toilet seat is subjected. Chrome plated hinges, instead of nickel plated hinges, can be furnished if desired. No extra charge for Chrome plated hinges on Colonial Seats. Hinges are equipped with nuts and washers. All seats equipped with pure white rubber bumpers.



No. 900

No. 900—Closed Front Colonial Seat for regular size bowl, 5½ inches between hinge post holes. Furnished in white, orchid, canary yellow, green, pink, rose, ivory, Mediterranean blue and gray. Cast brass, chrome plated hinges with one-half inch bar made of eighteen gauge brass tubing.

No. 900-A—Same as above, less cover.

No. 925—Same as No. 900, but finished in mahogany or oak with finest grade varnish.

No. 925-A—Same as No. 925, less cover.



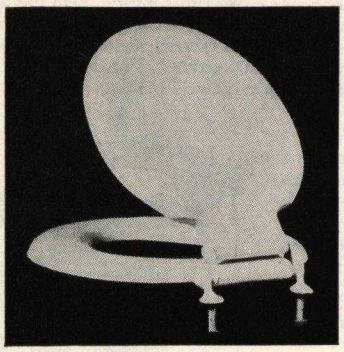
No. 909

No. 909—Open Front Colonial Seat for regular standard size bowl, 5½ inches between hinge post holes. Furnished in white, orchid, canary yellow, green, pink, rose, ivory, Mediterranean blue and gray. Cast brass, chrome plated hinges with one-half inch bar made from eighteen gauge brass tubing.

No. 909-A—Same as above, less cover.

No. 919—Same as No. 909, but finished in mahogany or oak with finest grade varnish.

No. 919-A—Same as No. 919, but less cover.



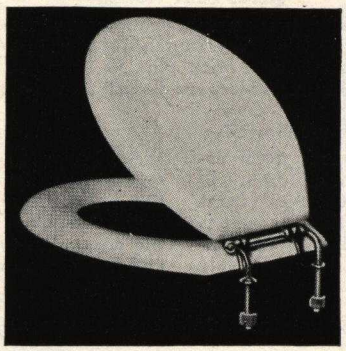
No. 1000

No. 1000—Closed Front Everlasto Seat for regular size bowl, 5½ inches between hinge post holes. Furnished in white, orchid, canary yellow, green, pink, rose, ivory, Mediterranean blue and gray. Hinges are cast from pure ingot brass, nickel or chrome plated or colored to match seat.

No. 1000-A—Same as above, less cover.

No. 1025—Same as No. 1000, but finished in mahogany or oak with finest grade varnish.

No. 1025-A—Same as No. 1025, less cover.



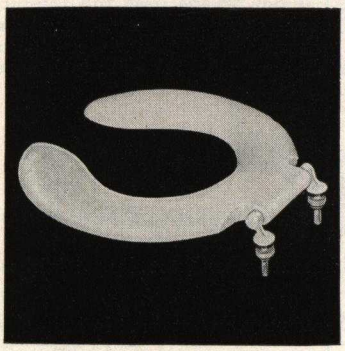
No. 800

No. 800—Closed Front Everlasto Seat for regular size bowl, 5½ inches between hinge post holes. Furnished in white, orchid, canary yellow, green, pink, rose, ivory, Mediterranean blue and gray. Cast brass, nickel or chrome plated hinges with one-half inch bar made of eighteen gauge brass tubing.

No. 800-A—Same as above, less cover.

No. 825—Same as No. 800, but finished in mahogany or oak with finest grade varnish.

No. 825-A—Same as No. 825, less cover.



No. 1009-A

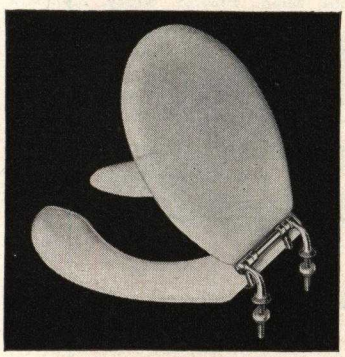
No. 1009—Open Front Everlasto Seat for regular size bowl, 5½ inches between hinge post holes. Furnished in white, orchid, canary yellow, green, pink, rose, ivory, Mediterranean blue and gray. Hinges are cast from pure ingot brass, nickel or chrome plated or colored to match seat.

No. 1009-A—Same as above, less cover.

No. 1029—Same as 1009, but finished in mahogany or oak with finest grade varnish.

No. 1029-A—Same as No. 1029, less cover.

Miller Everlasto and Colonial Seats and Hinges



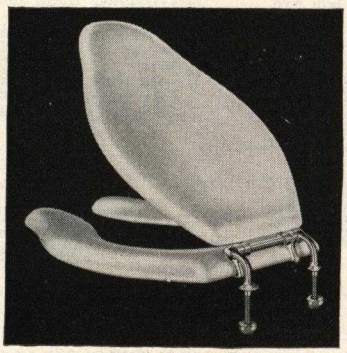
No. 809

No. 809 — Open Front Everlasto Seat for regular standard size bowl, 5½ inches between hinge post holes. Furnished in white, orchid, canary yellow, green, pink, rose, ivory, Mediterranean blue and gray. Cast brass nickel plated hinges with one-half-inch bar made from eighteen-gauge brass tubing. Chrome plated, if desired.

No. 809-A—Same as above, less cover.

No. 819—Same as No. 809, but finished in mahogany or oak with finest grade varnish.

No. 819-A—Same as No. 819, less cover.



No. 805

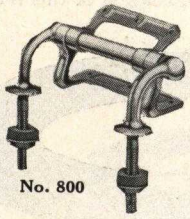
No. 805—Open Front Everlasto Seat for extended lip bowl, 5½ inches between hinge post holes. Furnished in white, orchid, canary yellow, green, pink, rose, ivory, Mediterranean blue and gray. Cast brass nickel plated hinges with one-half inch bar made from eighteen-gauge brass tubing. Chrome plated, if desired.

No. 805-A—Same as above, less cover.

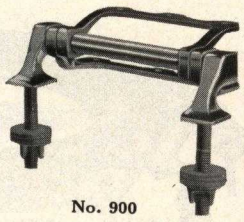
No. 807—Same as No. 805, but finished in mahogany or oak with finest grade varnish.

No. 807-A—Same as No. 807, less cover.

No. 800—Cast Brass Nickel Plated Hinge. Made from Pure Ingot Metal with half-inch bar made from eighteen-gauge brass tubing —heavily nickel or chrome plated. Guaranteed against breakage. Nuts and washers furnished on all hinges.



No. 800



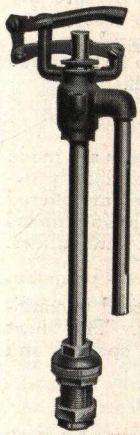
No. 900

No. 900—Cast Brass Chromium Plated Hinge made from pure ingot metal with half-inch bar made from eighteen-gauge brass tubing. Guaranteed against breakage. Nuts and washers furnished.

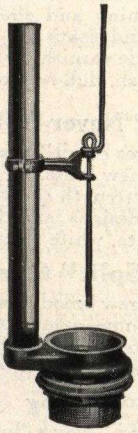
A new Colonial Design Hinge that will match other bathroom fixtures.

Miller Everlasto and Colonial Tank Trimmings

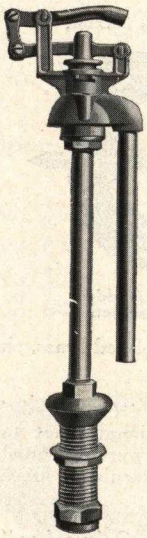
Everlasto Ballcocks and Flush Valve



No. 72—Regular



No. 620



No. 72—Long

No. 72—Brass Ballcock with regular shank. Complete with float rod and refill. Compound lever.

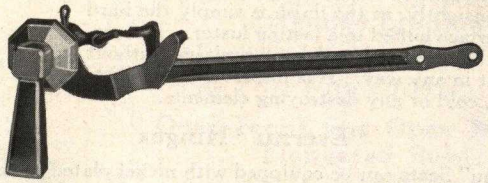
No. 620—Brass Flush Valve, one-inch overflow tube with lift wires, less rubber ball.

No. 72—Brass Ballcock with long shank, complete with float rod and refill. Compound lever.

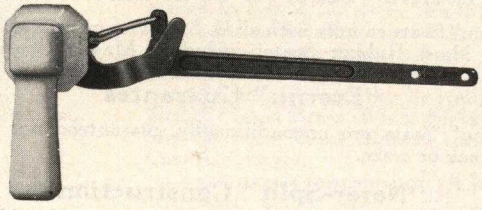
Miller Everlasto and Colonial Tank Levers



No. 69—Double Action brass tank lever, with all China Handle.



No. 58—Double Action brass tank lever, with all metal Chrome Plated Handle. Colonial Design.



No. 59—Double Action brass tank lever, with all China Colonial Handle.

NEVER SPLIT SEAT COMPANY EVANSVILLE, IND.

Representatives

Baltimore, Md., Geo. A. Lucke, 3307 Elgin Ave.
Birmingham, Ala., W. T. Mayfield Co., 1910 Webb-Crawford Bldg.
Bridgeport, Conn., Geo. A. Cornwall, 143 Buena Vista Road.
Buffalo, N. Y., L. J. Drescher, 408 Lincoln Parkway
Chicago, Ill., W. E. Silberman, 3606 N. Meade Ave.
Cincinnati, Ohio, H. O. Anderson, 1309 Union Trust Bldg.
Cleveland, Ohio, F. F. Bulkeley, 2112 Stearns Road
Dallas, Texas, M. D. Willhite, P. O. Box 4127
Denver, Colo., L. B. Putnam Co., C. A. Johnson Bldg., 17th and Glenarm Sts.
Des Moines, Iowa, Shank-Haney Co., 402 Old Colony Bldg.
Detroit, Mich., C. M. Hargrave, 13623 Wark Ave.
Indianapolis, Ind., L. L. Wright, 1401 Shannon Ave.
Kansas City, Mo., Wheeler Specialty Co., 2451 Askew Ave.
Los Angeles, Cal, G. J. Reardon, 440 Seaton St..
Minneapolis, Minn., Fred S. Wilsey, Plymouth Bldg.
New York, N. Y., L. W. Jarrett, 280 Madison Ave.
Oklahoma City, Okla., L. A. Wheaton, P. O. Box 411
Philadelphia, Pa., C. A Wagner, 2401 Chestnut St.
Pittsburgh, Pa., Frank H. Kuhn, House Bldg.
St. Louis, Mo., Henry H. Engeling, 1211 Chemical Bldg.
San Francisco, Cal., Emile Heymans, 681 Market St.
Scranton, Pa., T. A. Walsh, 709 Brooks Bldg.
Seattle, Wash., F. C. Neupert, 330 Central Bldg.

NEVER SPLIT SEAT CO. EVANSVILLE, IND. U.S.A.

Manufacturers of

Hard Rubber and Wood Closet Seats

In All Finishes, Constructions and Models

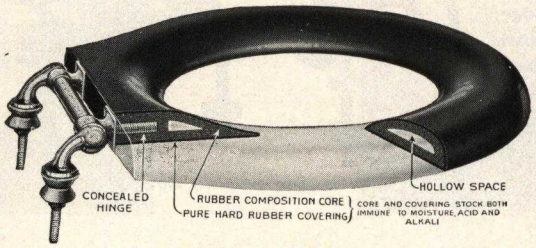
SOLD ONLY THROUGH JOBBERS OF PLUMBING SUPPLIES

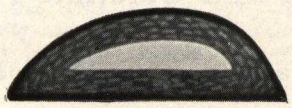
Products

(1) "Evernu" Hard Rubber Seats. (Patented.)
(2) "Never-Split" Wood Seats. (Patented.)
  (a) White and Colored Sheet "Pyralin" Covered Seats.
  (b) White and Colored Sprayed Seats.
  (c) Varnished Seats. (All finishes and woods.)
  (d) Special Seats of any description.

"Evernu" Construction

"Evernu" Seats are made of pure hard rubber. They are hollow, except across the back, where they are made solid and into which solid portion the hinges are attached. The interior wall, made of a special rubber composition, and the exterior wall of pure ebony or mahogany hard rubber are vulcanized together under tremendous hydraulic pressure into one indestructible unit. The hollow center provides lightness and strength. There are no joints to open, no cracks or crevices in the surface.





"Evernu" Cross Section

"Evernu" Installations

"Evernu" Seats are approved by leading architects and builders. They are installed in many prominent buildings. Every "Evernu" Seat sold has given perfect service. It is an ideal seat for any installation.

"Evernu" Finishes

"Evernu" Seats are made either ebony or mahogany in color. There is no finish to wear off or become unsightly, as the finish is simply the hard rubber surface buffed to a lasting luster. The surface can be sterilized and kept sanitary without injuring it in any way. It is impervious to moisture, heat, cold or any destroying elements.



"Never-Split" Hidden Screw Connection

"Evernu" Hinges

"Evernu" Seats can be equipped with nickel plated brass, white metal, chromium plated, or black moulded hinges, with or without check. As durable and lasting as the seat itself, they can never pull loose from it; in fact, they become more firmly embedded with age.

"Evernu" Seats for U. S. Government

"Evernu" Seats comply with all U. S. Government Specifications covering Hard Rubber Seats, including Master Specifications No. 448.

"Evernu" Guarantee

"Evernu" Seats are unconditionally guaranteed not to split, break, crack or craze.

"Never-Split" Construction

All "Never-Split" Seats are made by our patented hidden screw construction. (See construction cut.) They are held together by heavily threaded steel screws within the wood. The screws absolutely prevent the woodwork from ever splitting or coming apart at the joints. The screws have right and left-hand threads and are embedded into the wood by means of hydraulic pressure. The screws are entirely invisible and there are no mortise holes, plugs or fillings in the surface of the woodwork or any outward indication of this unique hidden steel reinforcement.

"Never-Split" Finishes

(A) **Sheet Covered—White—Plain Colors and Sea Pearl Color**—Extra heavy sheet pyralin of the finest quality is used on all "Never-Split" sheet covered seats. Sheeting is applied by a scientific process that completely envelopes the woodwork in a seamless, lustrous and durable sheathing. Surface can be easily cleaned and will not chip, crack, craze, or discolor. "Never-Split" sheet covered seats are made in pure white, sea pearl colors and plain colors.

(B) The **"Never-Split" Sprayed Finish** is a high grade finish produced by spraying several coats of very high grade lacquer. They can be furnished in pure white and many colors. (When ordering colored sprayed seats submit sample of color to be matched.) The finish is allowed to dry and then buffed to a high lustre. Can be easily cleaned with hot or cold water and soap.

(C) **Varnished**—"Never-Split" oak, mahogany, cherry and walnut finishes are made by carefully filling, staining and shellacking the wood, over which ground coats are applied several coats of highest grade varnish. Final coat can be furnished in gloss finish, dull rub, or high polish.

"Never-Split" Hinges

The hinges on all "Never-Split" Seats are made from pure new brass. They are scientifically designed for strength and beauty. They are offered in many designs and finishes, including nickel plated brass, chromium plate, white metal and black hard rubber.

"Never-Split" Guarantee

"Never-Split" hidden screw woodwork is guaranteed unconditionally not to split or come apart at the joints. The sheet "pyralin" finish is guaranteed for five years. The sprayed and varnished finishes are guaranteed for three years.

Catalog

Only a few "Evernu" and "Never-Split" models are shown on these pages. A complete catalog will be mailed on request.

Special Seats

In addition to our regular line of seats, we make special seats and hinges of any design or finish. Prices will be furnished on receipt of information as to what is required.

Construction Sections and Sales Helps

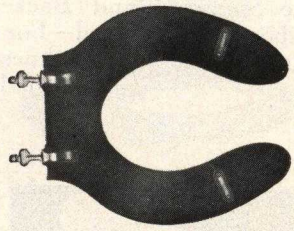
Construction sections of "Evernu" and "Never-Split" Seats and many other sales helps will be furnished without charge on request.

Evernu Hard Rubber Seats

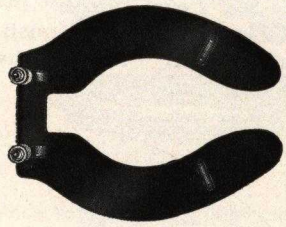
Ebony or Mahogany Finish



No. 500—"Evernu"



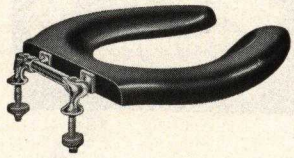
No. 630—"Evernu"



No. 645—"Evernu"



No. 510-W—"Evernu"



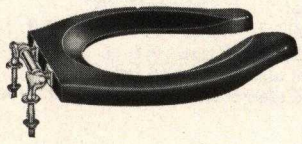
No. 525-W—"Evernu"



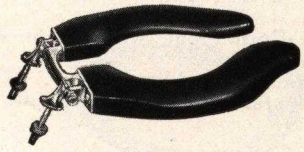
No. 635—"Evernu"



No. 640—"Evernu"



No. 550-W—"Evernu"



No. 580—"Evernu"

Closed Front for Regular Bowl

No. 500-W—Less Cover.
No. 510-W—Less Cover.
No. 500—With Cover.
No. 510—With Cover.

Open Front for Raised Lip Bowl

No. 501-W—Less Cover.
No. 501—With Cover.

The hinges are inserted into the under side of the seat. No metal parts whatever are visible on the top, sides or back of the seat. These hinges are regularly furnished with a patented device to remove the seat from the bowl without unloosening or detaching the hinge posts, making it possible to thoroughly clean and sterilize the seat and the rear of the bowl. Seats can be easily re-attached to the bowl. Non-removable hinges of this type can be furnished if desired. This type of seat and hinge are furnished in four styles, as follows:

No. 630—Open front and closed back for regular bowl.

No. 635—Open front and closed back for extended lip bowl.

No. 640—Open front and open back for regular bowl.

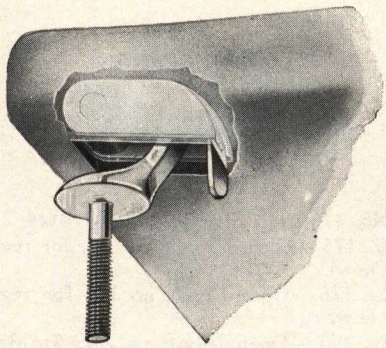
No. 645—Open front and open back for extended lip bowl.

Open Front for Regular Bowl

No. 525-W—Less Cover.
No. 630—Less Cover.
No. 525—With Cover.
No. 640—Less Cover.

Open Front for Extended Lip Bowl

No. 550-W—Less Cover.
No. 635—Less Cover.
No. 550—With Cover.
No. 645—Less Cover.



Hinge Construction of the No. 630 (Patented) Series of "Evernu" Seats

Open Front for Elongated Bowl

No. 575-W—Less Cover.
No. 635—Less Cover.
No. 575—With Cover.
No. 645—Less Cover.

Open Front and Open Back for Regular Bowl

No. 580—Less Cover.
No. 581—With Cover.

Open Front and Open Back for Extended Lip Bowl

No. 590—Less Cover.
No. 591—With Cover.

Open Front and Open Back for Elongated Bowl

No. 595—Less Cover.
No. 592—With Cover.

U. S. Government Specifications

"Evernu" Hard Rubber Seats can be furnished to comply in every respect with the specifications of all United States Government Purchasing Departments, including Standard Master Specifications No. 448.

All "Evernu" Seats can be equipped with Nickel Plated Brass, White Metal, Chromium Plated or Black Molded Hard Rubber Covered Hinges.

Check hinges furnished on all seats without cover.

Self-Raising hinges can be furnished on all seats without cover, except No. 630, No. 635, No. 640 and No. 645.

See Following Page

Never-Split Wood Seats

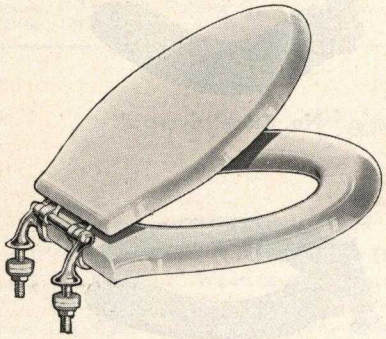
Hidden Screw Construction

Finishes: White Sheet Covered—Plain Color Sheet Covered—Sea Pearl Sheet Covered—White Sprayed Finish—Colored Sprayed Finish—Oak—Mahogany.

Hinges: Nickel Plated Brass—Chromium Plated Brass—White Finished Brass.

Models: Closed Front—Open Front—Open Front and Back—For Regular Bowl—For Extended Lip Bowl—For Elliptical Rim Bowl.

Thickness: All **"Never-Split"** Models can be furnished made from either 1¼-inch or 1½-inch Lumber.



No. 120 with Bar Hinge

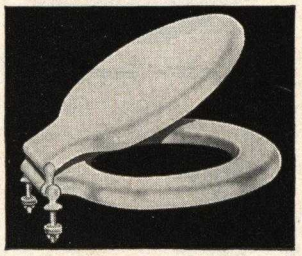
No. 120—Closed Front, with lid, for regular bowl.

No. 121—Open Front, with lid, for regular bowl.

No. 122—Open Front, with lid, for extended lip bowl.

Above also furnished less lid.

Above also furnished for eliptical bowl.



No. 295-2 with Concealed Hinge

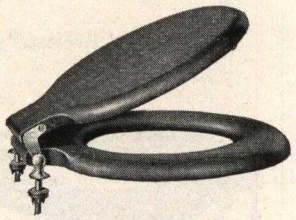
No. 295-2—Closed Front, with lid, for regular bowl.

No. 296-2—Open Front, with lid, for regular bowl.

No. 297-2—Open Front, with lid, for extended lip bowl.

Above also furnished less lid.

Above also furnished for eliptical bowl.



No. 105 with Concealed Hinge

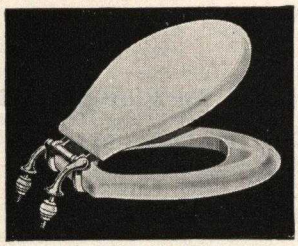
No. 105—Closed Front, with lid, for regular bowl.

No. 106—Open Front, with lid, for regular bowl.

No. 107—Open Front, with lid, for extended lip bowl.

Above also furnished less lid.

Above also furnished for eliptical bowl.



No. 135-1 with Bar Hinge

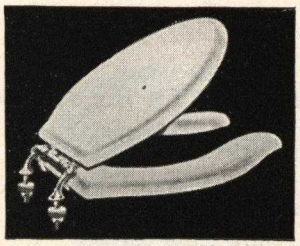
No. 135-1—Closed Front, with lid, for regular bowl.

No. 136-1—Open Front, with lid, for regular bowl.

No. 137-1—Open Front, with lid, for extended lip bowl.

Above also furnished less lid.

Above also furnished for eliptical bowl.



No. 122-1 with Bar Hinge

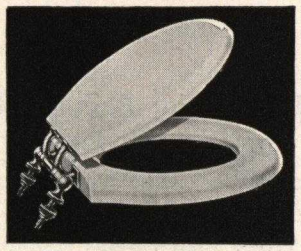
No. 122-1—Open Front, with lid, for extended lip bowl.

No. 120-1—Closed Front, with lid, for regular bowl.

No. 121-1—Open Front, with lid, for regular bowl.

Above also furnished less lid.

Above also furnished for eliptical bowl.



No. 285-2 Bar Hinge with Concealed Lugs

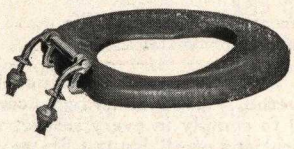
No. 285-2—Closed Front, with lid, for regular bowl.

No. 286-2—Open Front, with lid, for regular bowl.

No. 287-2—Open Front with lid, for extended lip bowl.

Above also furnished without lid.

Above also furnished for eliptical bowl.



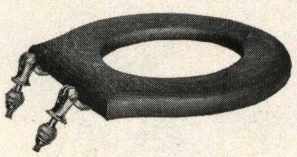
No. 300-W with Bar Hinge

No. 300-W—Closed Front, less lid, for regular bowl.

No. 300—Closed Front, with lid, for regular bowl.

Above also furnished with open front for regular or extended lip bowl.

Above also furnished for eliptical bowl.



No. 175 with Special Hotel Hinge

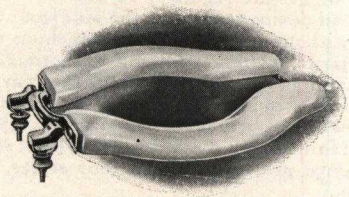
No. 175—Closed Front, no lid, for regular bowl.

No. 176—Open Front, no lid, for regular bowl.

No. 177—Open Front, no lid, for extended lip bowl.

Above cannot be furnished with lid.

Above can be furnished for eliptical bowl.



No. 266-W Bar Hinge with Reinforced Plate

No. 266-W—Open Front and Back, no lid, for extended lip bowl.

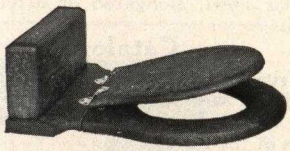
No. 266—Open Front and Back, with lid, for extended lip bowl.

No. 265—Open Front and Back, with lid, for regular bowl.

No. 265-W—Open Front and Back, no lid, for regular bowl.

Never-Split Wood Seats

Hidden Screw Construction



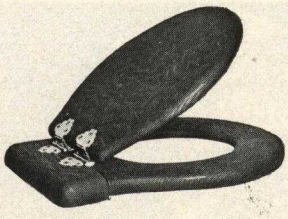
No. 21

No. 21—1¼-inch Pedestal Type Seat with cover complete with box and wood back strip. Finished in Natural or Golden Oak, Imitation Mahogany, White Enamel or White Sprayed.

No. 21-W—Same as No. 21 except without cover.

No. 20—Same as No. 21 except without box.

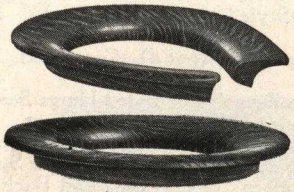
No. 20-W—Same as No. 21 except without both cover and box.



No. 100—"Never-Split"

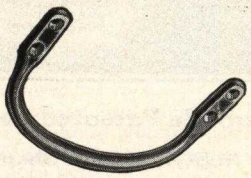
No. 100—1¼-inch Back Strip Seat with cover. Finished in Natural or Golden Oak, Imitation Mahogany, White Enamel or White Sprayed.

No. 100-W—Same as No. 100 except without cover.



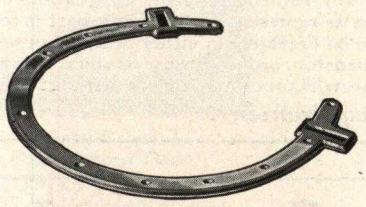
Juvenile Rings

Made to fit seats of any make. Open front style is for use on saddle seats; closed front style is for use on plain shaped seats. They are small and compact, have no pegs or protrusions, but fit the large seats securely.



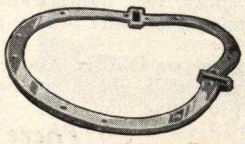
No. 3—Lifting Plate

Can be attached to front or any type seat.



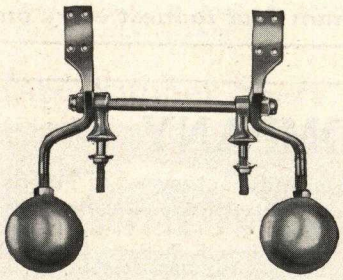
No. 4—Reinforcing Plate for Open Front Seats

No. 6—Reinforcing plate same as No. 4 except continuous for closed front seat.



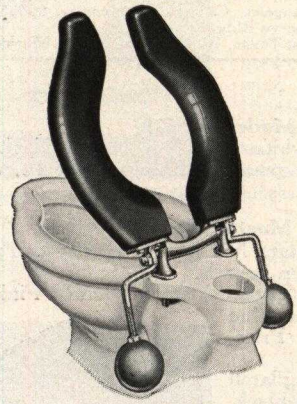
No. No. 8 Reinforcing Plate for Extended Lip Closed Front Seat

No. 9 reinforcing plate same as No. 8 except for open front extended lip seat.



No. 2—Nickel Plated Brass Self-Raising Hinge

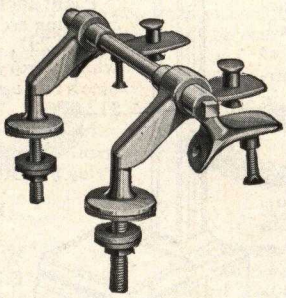
Lighter in construction and appearance than No. 1 but dependable and serviceable. Recommended for factory use. Regularly equipped with aluminum plated iron weights but can be furnished with nickel plated iron or brass weights.



No. 1—Extra Heavy Nickel Plated Brass Ball Weight Self-Raising Hinge

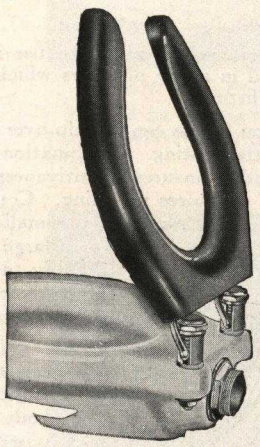
Either nickel plated iron or brass weights. Any seat without cover listed can be furnished with this type of hinge.

This hinge can also be furnished in nickel plated brass, white metal or crodon plate, including weights.



Close Roughing Hinge with Friction Spring in Posts

Can be attached to No. 120 seat only.



Emory Self-Raising Double Cylinder Spring Hinge

Any seat without cover listed can be furnished with this hinge.

VAN ARNAM MANUFACTURING CO. FT. WAYNE, INDIANA

Van Arnam Products

"NuStyle" (pat'd) Concealed Hinge Seat.
"Superior" (pat'd) Concealed Hinge Seat.
"Challenge" Concealed Hinge Seat.
"Winner" Bar-type Hinge Seat.
"Closruf" Special Hinge Seat (pat'd.)
"Self-Raising" Seat (Weight or Spring).
"Modern" Open-Front and Back Seat.
"Modern" Bathroom Benches.
Folding Bathtub Benches.
Ash Drainboards.
"VanArCo" Anti-singing Ballcocks.
Low-back Bathroom Chairs.

Finishes

Any of the above products available in the following complete range of finishes:

Genuine Sheet Pyralin—a seamless welded covering of sheet pyralin, moisture-proof and extremely durable.

"Leader" Brand—competitive, with lighter gauge Pyralin and 1¼-inch woodwork.

"Double-Eagle" Brand—finest quality, heavy stock and 1½-inch woodwork.

Both grades are available in white, black, or all standard plain colors—also in Sea Pearl Pyralin in all standard colors.

Pyroxylin—a specialized coating applied by spray, very durable and attractive—available in white or any standard color.

Mahogany or Golden Oak—specialized varnish, dull-rubbed by hand providing a protective film.



NuStyle Patented Seats

No. 50 NuStyle (Saddle Shape). An exceptionally strong concealed-hinge seat that will rough in close and is available in a complete range of styles and finishes.

No. 80 Superior (Saddle Shape). Has a concealed hinge on the NuStyle patented principle. Available in a low price range.

Models

Closed front or Open front to fit either regular bowl, elongated or extended lip bowl.

Catalog

Write for Catalog No. 31 which is compiled as a sales manual and complete catalog of detailed information covering all parts of the line.

Construction

Selected hardwoods, free from all defects, carefully seasoned in our own kilns. All seats reinforced by two large half-inch hickory dowels, 8 inches long. Glue joints of tongue and groove type.

Hinges

All hinges made from our own patterns of best ingot brass, and machined and polished in our factory. All plating, both nickel and chrome, done in our own factory under close supervision. Chromium plate has a heavy nickel deposit as a base coat, in accordance with most approved practice. Special patented hinges of advanced design are a special feature of the Van Arnam line.

Guarantee

All Van Arnam Seats are guaranteed to be as represented and if any part is found to be defective in either material or workmanship, ordinary wear or abuse excepted, we will promptly replace without charge.

There is a Van Arnam Seat to meet every building requirement!

HANSON SCALE COMPANY CHICAGO, ILL.

Main Office and Factory—525 North Ada Street

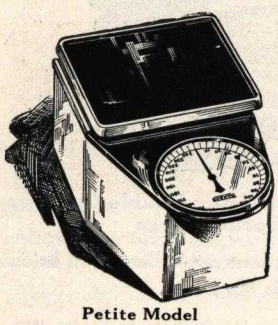
Hanson Representatives

Hopkinton, Mass., F. L. Arms
Milwaukee, Wis., W. A. Buehrer, 2325 W. Capitol Drive
Denver, Col., B. E. Blunden, 217 Josephine St.
New York, N. Y., W. K. Cavanaugh, 1150 Broadway, Room 708
Birmingham, Ala., T. B. DeLoach, 806 Jackson Bldg.
Warren, Pa., C. A. Fabb, 3 Cottage Place
Fort Dodge, Iowa, R. W. Foster, 217 N. 16th St.
San Francisco, Cal., Gifford & Price, 7 Front St.
Dallas, Texas, W. T. Keeling, P. O. Box 573
Albuquerque, N. M., L. O. Kohlhaas, P. O. Box 723
Philadelphia, Pa., J. E. Lewis, c/o Spruce Hotel
Saginaw, Mich., G. H. Robertson, 1620 N. Michigan Ave.
St. Louis, Mo., L. C. Watling, 1112 First National Life Bldg.
Washington, D. C., Malone Wheless, 1851 Columbia Road
Little Rock, Ark., F. H. Wilson, 2718 Izard St.
St. Paul, Minn., L. R. Wulf, 1930 Lincoln Ave.
Los Angeles, Cal., K. W. Zeagler, 608 California Reserve Bldg.
Dallas, Texas, W. H. Allen, 301 N. Market St.

Hanson Bathroom Scales

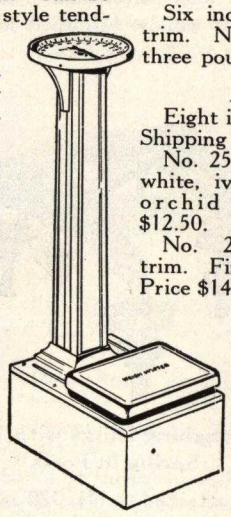
Personal weight scales for use in modern bathrooms. Can be furnished in a line of colors which follow the modern style tendency in fittings.

Hanson Scales can not tip over. Broad base gives a substantial footing. Combination six spring and lever construction insures sensitiveness and continual accuracy. Requires no oiling. Completely guaranteed. Accurate and sensitive to small weights as well as large weights. Particularly adapted for use in homes where there are children.



Petite Model

Constructed of heavy selected steel throughout. Adjusted by set screw in body of scale—not exposed. Dials, glass covered. Figures in legible black on white enamel. Capacity two hundred and fifty pounds by pounds. Platforms, seven by ten inches.



Elevated Dial Model

Petite Model No. 129

Six inch dial. Colors—white, green, or blue. Black Japan trim. Net weight, nineteen pounds. Shipping weight, twenty-three pounds. Price $10.00.

Weigh Master Model

Eight inch dial. Rubber mat. Net weight, twenty-two pounds. Shipping weight, twenty-seven pounds.

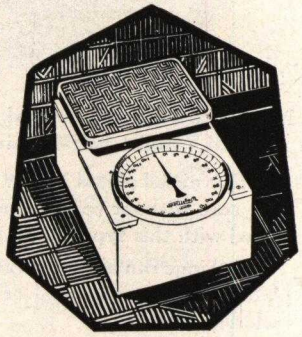
No. 257, white porcelain (vitreous) enamel trim. Finished in white, ivory, black, old rose, blue orchid or jade green. Price, $12.50.

No. 248, chromium plated trim. Finished in white or black. Price $14.50.

Elevated Dial Model

Same mechanism as in Weigh Master Model. Dial is elevated to a height of 31½ inches from floor. Enameled in white or jade green. Net weight, thirty pounds. Shipping weight, forty-four pounds.

No. 345, price $27.50.



Hanson Weigh Master

STANDARD TANK & SEAT CO. CAMDEN, N. J.

Main Office and Factory—308-320 North Front Street

STASCO

Closet Seats

Products

"Stasco Empire Seamless White" Seats.
"Stasco Empire Seamless Colored" Seats.
"Stasco Ivory" White Sheet Pyralin Covered Seats.
"Stasco Marine Pearl" Sheet Pyralin Covered Seats.
"Stasco Arch-Built" Hard Rubber Seats.
"Stasco-lac" Oak and Mahogany Seats.

Catalogue

A new, complete, standard size catalogue giving full information and specifications is available on request.

Finishes

All Models Shown Can Be Obtained in the Following Finishes:

Empire Seamless Finish—A high grade, tough, durable, seamless covering manufactured and used exclusively by the Standard Tank and Seat Co.

No seat has ever been returned because this finish broke down.

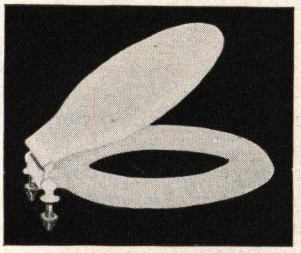
In white or the following colors: Straw, Orchid, Spring Green, Baby Blue, Old Rose, Lavender, Black. Guaranteed five years.

White Sheet Covered and Marine Pearl Finish—A heavy covering of sheet Pyralin welded to the seat by a special process. Buffed to a permanent luster. Lap joint insures against splitting or peeling at seams. In white or Marine Pearl colors. Guaranteed five years.

Stasco-lac Oak and Mahogany—A special waterproof lacquer made exclusively by "Stasco." Guaranteed not to paper mark or print, and is acid-, Alkali- and water-proof.

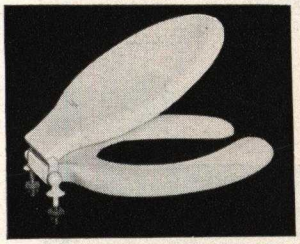
Construction

Only selected hardwoods, clear on both sides and free from defects, are used. Spiral grooved hickory dowel reinforcement. Hinges are heavy cast brass, either nickel plated, chromium plated, or all white, as specified.



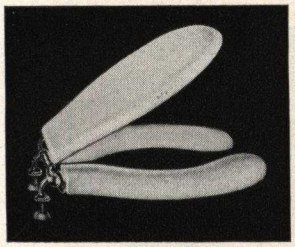
Stasco Special Oval Seat

No. 196 for Standard Bowl—No. 206 for Extended Lip Bowl—No. 207 for Elongated Bowl. All white hinge—no metal exposed. On colored and Marine Pearl Seats, chromium plated hinge furnished.



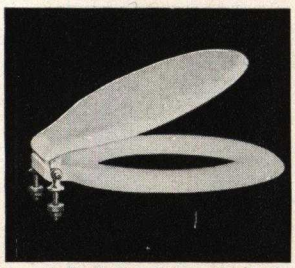
Stasco Special Open Front Seat

No. 201 for Standard Bowl—No. 202 for Extended Lip Bowl—No. 208 for Elongated Bowl. All white hinge—no metal exposed. On colored and Marine Pearl Seats, chromium plated hinge furnished.



Open Front and Back Seat

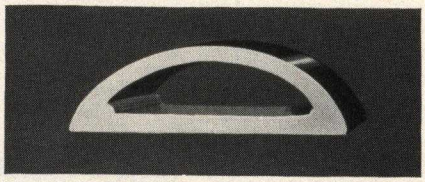
No. 278 for Standard Bowl—No. 279 for Extended Lip Bowl—furnished with No. 730 N. P. Reinforcing Gibraltar Bar Hinge.



Extended Back Oval Seat

No. 360 for Standard Bowl—equipped with No. 360 concealed type N. P. Hinge.

Hard Rubber Seats



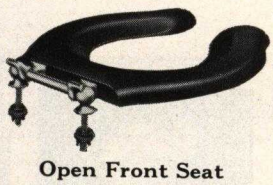
Stasco Arch-Built hard rubber seats have a uniform protecting wall of hard rubber 3/16 of an inch thick.

Hard rubber special arch construction utilizing the same engineering principle used in building construction the world over gives exceptional strength and resiliency. Made of highest grade, long-cure hard rubber. Permanent high polish. Hinges attached to brass insert moulded into solid rubber.

Hinges—All hinges are cast brass, heavily nickel or chromium plated. Guaranteed against breakage. All hinges furnished with wing nuts, plated washers and rubber washers. All seats and covers can be supplied with hard rubber covered hinges eliminating all exposed metal.

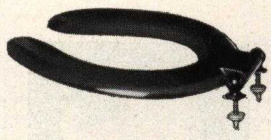
Guarantee

All Stasco Hard Rubber Seats are guaranteed unconditionally against manufacturing defects and to give absolutely satisfactory service. Seats not giving absolute satisfaction will be replaced.



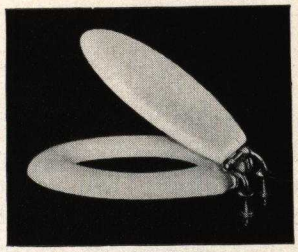
Open Front Seat

No. 0970—For either Standard or Extended Lip Bowl—Equipped with heavy N. P. Brass Hinge or Hard Rubber Moulded Hinge—With check.



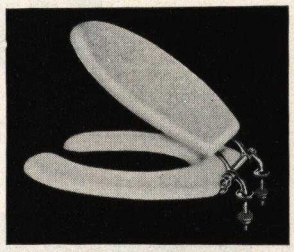
Open Front Seat

No. 0901—For either Standard or Extended Lip Bowl. STASCO Hard Rubber Hollow Construction—Equipped with moulded rubber cast brass hinges—no metal exposed type—cannot corrode or tarnish—furnished with or without check. Can be supplied with cover.



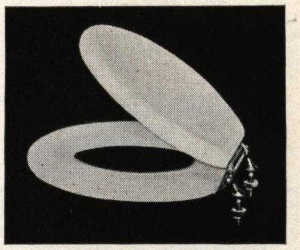
Plain Oval Seat

No. 210 for Standard Bowl—No. 212 for Extended Lip Bowl—No. 214 for Elongated Bowl—equipped with No. 701 N. P. Bar Hinge.



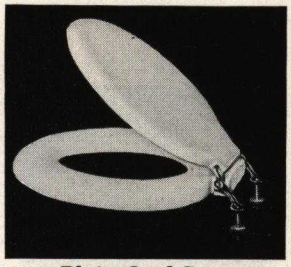
Open Front Seat

No. 270 for Standard Bowl—equipped with No. 725 Reinforcing N. P. Bar Hinge. No. 271 for Extended Lip Bowl—No. 272 for Elongated Bowl—equipped with No. 735 Reinforcing N. P. Bar Hinge.



Plain Oval Seat

No. 358 for Standard Bowl—equipped with No. 705 N. P. Bar Hinge.



Plain Oval Seat

No. 368 for Standard Bowl—equipped with special close-ruf hinges made especially for use where Closet is roughed in too close for regular Seat to be used.

BAY RIDGE SPECIALTY COMPANY, INC.

Factory
682-692 Stokes Ave.,
Trenton, N. J.

General Sales Office
67 West 44th St.,
New York City

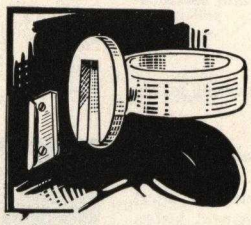
Manufacturers of

All-China Bathroom Accessories

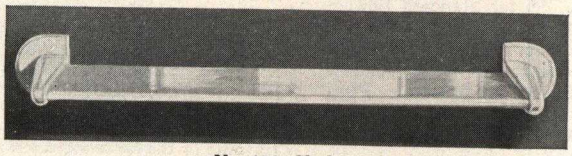
No. 400 Series

The 400 Series with concealed fastener as shown below mark another advance by the Bay Ridge in china accessories. Their new and simple method of attachment—their durable quality—their neat and attractive appearance—their convenience and comfort are features which set this line apart and above all others on the market.

All fixtures furnished in Bay Ridge standard colors—Black, Blue, Buff, Grey, Green, Ivory, Lavender, Orchid, Pink; also in colors to harmonize with colored fixtures made by standard manufacturers.



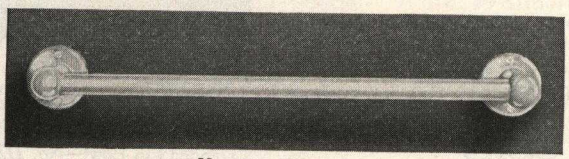
Concealed Fastener and Method of Attachment



No. 435—Shelves

Opal or Crystal Plate Glass—5 inches wide.

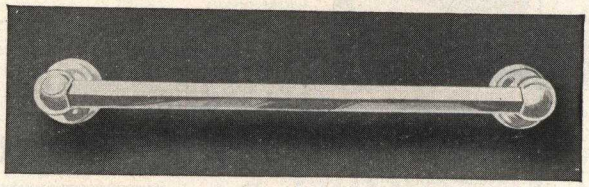
	White	Colored
Price—18-inch Crystal	$2.75	$4.00
18-inch Opal	3.25	4.50
24-inch Crystal	3.25	4.50
24-inch Opal	3.75	5.00



No. 417—Towel Bar

Round Opal bar—¾-inch Diameter.

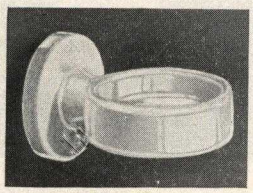
	White	Colored
Price—18-inch	$1.60	$2.50
24-inch	1.80	2.75
30-inch	2.00	3.00



No. 450—Towel Bar

⅞-inch Square Pyralin bar.

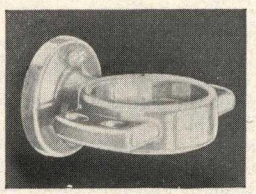
	White	Colored
Price—18-inch	$2.20	$2.80
24-inch	2.50	3.20
30-inch	2.80	3.60



No. 445

Tumbler Holder

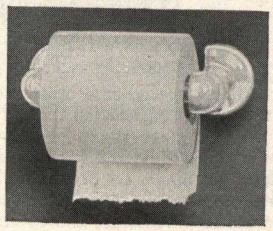
Price—White.....Each $1.00
Price—Colored...Each 1.50



No. 455

Tumbler and Tooth Brush Holder

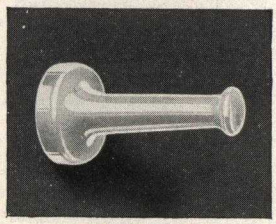
Price—White.....Each $1.20
Price—Colored...Each 1.75



No. 477

Paper Holder

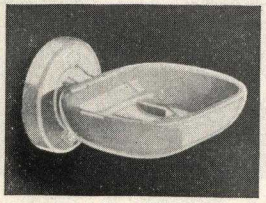
Price—White.....Each $1.60
Price—Colored...Each 2.50



No. 475

Paper Holder

Price—White.....Each $1.00
Price—Colored...Each 1.50



No. 469

Soap Holder

Price—White.....Each $1.00
Price—Colored...Each 1.50



No. 485

Robe Hook

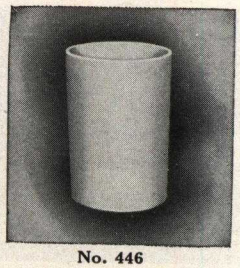
Price—White.....Each $0.50
Price—Colored...Each .80



No. 488

Strop Hook

Price—White.....Each $0.40
Price—Colored...Each .70



No. 446

Tumbler, Glass

Price—White.....Each $0.50
Price—Colored...Each .75

AMERICAN ENAMELED PRODUCTS CO. MT. PLEASANT, MICH.

General Offices and Factory

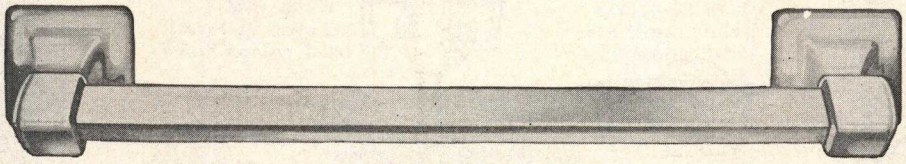
Sales Office: 1529 So. Michigan Avenue, Chicago, Illinois

GENUINE TRADE SNO-WITE MARK ENAMEL

"Elite Line"

New Sno-Wite Porcelain Enameled Fixtures, with patented wall-plate designed for use on any kind of wall, and concealing the screws back of the uniform square base.

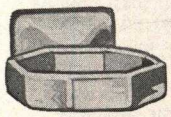
These fixtures will enhance the richness of the finest modern bathrooms. Particularly adapted for remodeling work, or any wall where quality is desired at moderate price. They are packed complete in individual boxes. Anyone can install them.



Towel Bars

¾-inch Diameter Square Steel Tube

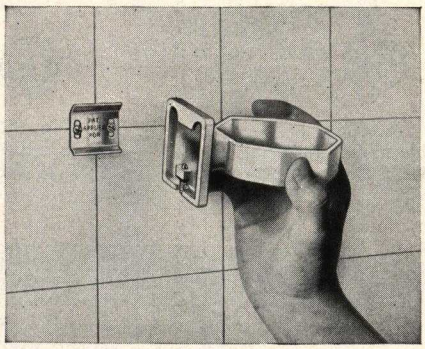
1058—18-inch..... **$2.80 Each**
1058—24-inch..... **3.00 Each**
1058—30-inch..... **3.40 Each**
1058—Posts only. Per pair..... **$1.80 Each**

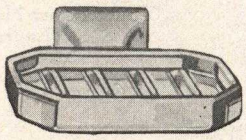


1050
Tumbler Holder
$1.25 Each

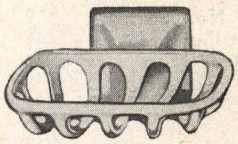


1062
Razor Strop or Wash Cloth Hook
$0.50 Each

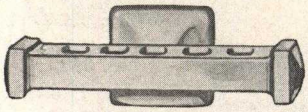




1052
Solid Soap Dish
$1.50 Each



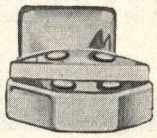
1051
Open Soap Dish
$1.25 Each
Glass Tray to Fit
$0.50 Each



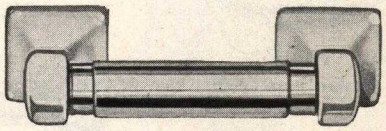
1055
Tooth Brush Holder
$1.25 Each



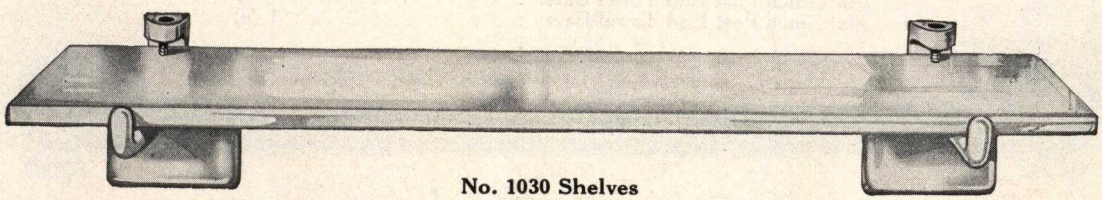
1066
Robe Hook
$0.80 Each



1085
Tooth Paste and Brush Holder
$1.40 Each



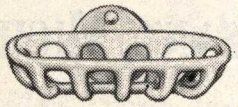
1089
Toilet Paper Holder with Spring Roller
$2.50 Each



No. 1030 Shelves

Brackets only, per pair..... **$2.00**
With 18-inch Opal or Plate Glass, complete..... **3.50 Each**
With 24-inch Opal or Plate Glass, complete..... **4.00 Each**

Colors—Black, Rose, Green, Ivory and White carried in stock



No. 851
Oblong Wall Soap Dish
$0.55 Each

No. 801
Opal or Crystal Tray
for above
$0.50 Each

GENUINE SNO-WITE ENAMEL

"Kolor-Kraft" Line

(800 Series)

Porcelain Enameled Bathroom Accessories attached with Patented Concealed Slot Capped Head Wood Screws

Packed in Neat Colored Individual Cartons

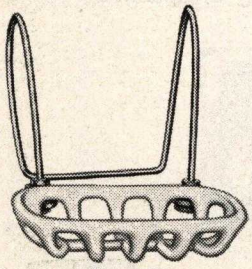
All accessories illustrated carried in stock in the following colors:

Green—Rose—Blue—Orchid—Black—White

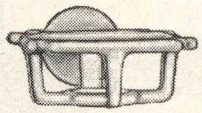


No. 857
Oval Wall Soap Dish
$0.55 Each

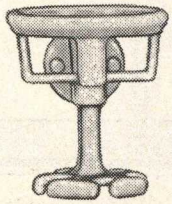
No. 801
Opal or Crystal Tray
for above
$0.50 Each



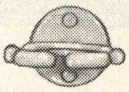
No. 853
Hanging Bath Soap Dish
$1.35 Each



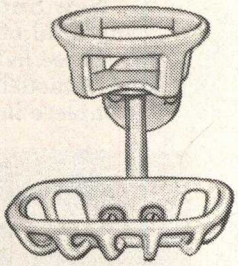
No. 849
Combination Tumbler and Toothbrush Holder
$0.49 Each



No. 884
Combination Tumbler and Toothbrush Holder
$1.10 Each



No. 855
Toothbrush Holder
$0.35 Each



No. 883
Combination Tumbler and Soap Holder
$1.60 Each

No. 801
Opal or Crystal Tray
for above
$0.50 Each



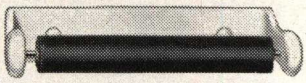
No. 856
Toilet Paper Holder
$0.40 Each



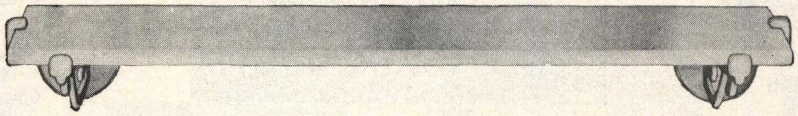
No. 863
Double Robe Hook
$0.25 Each



No. 862
Razor Strop Hook
$0.20 Each

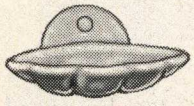


No. 886
Toilet Paper Holder
$1.00 Each

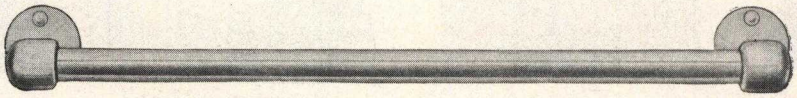


No. 830

Shelf Brackets only, 5 inches wide, per pair	$1.10
18x5-inch Opal or Crystal Glass Shelves	2.60
24x5-inch Opal or Crystal Glass Shelves	2.85

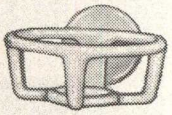


No. 852
Solid Soap Dish
$0.75 Each



No. 858

12x¾-inch Post End Towel Bars	$0.65
15x¾-inch Post End Towel Bars	.75
18x¾-inch Post End Towel Bars	.85
24x¾-inch Post End Towel Bars	1.10
30x¾-inch Post End Towel Bars	1.50



No. 850
Tumbler Holder
$0.55 Each



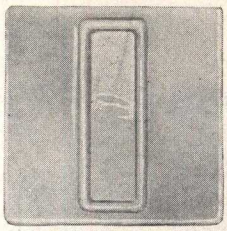
No. 865

15x¾-inch Curved End Towel Bars	$1.00
18x¾-inch Curved End Towel Bars	1.15
24x¾-inch Curved End Towel Bars	1.30
30x¾-inch Curved End Towel Bars	1.75

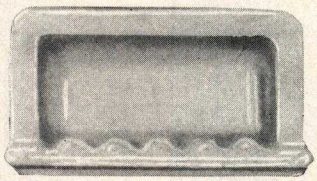
Semi-Inset Fixtures

Flange Type for Tile or Plaster Wall

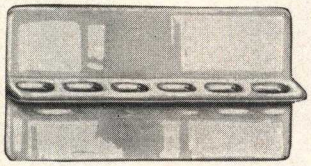
Sno-Wite Porcelain Enameled Iron



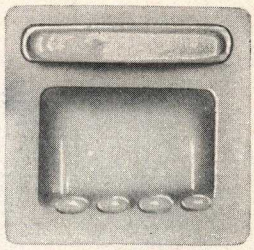
I-586—$2.25
Folded Paper Holder
For Single Fold Paper
No springs
Wall Opening 6x6x2¼



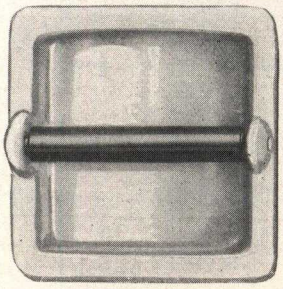
I-282—$2.60
Lavatory Soap Dish
Wall Opening 3x6x2¼



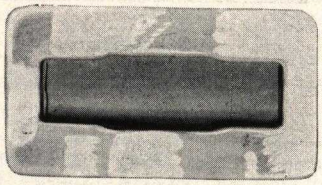
I-385—$2.60
Tooth Brush Holder
Wall Opening 3x6x1



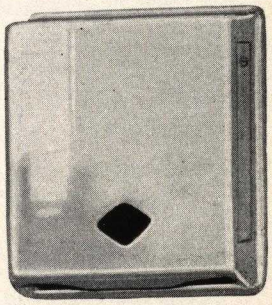
I-590—$3.00
Soap and Hand Rail
Wall Opening 6x6x2¼



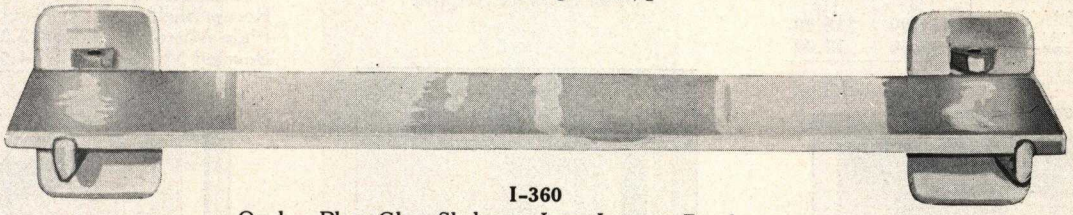
I-356—$4.00
Toilet Paper Holder
Wall Opening 6x6x1



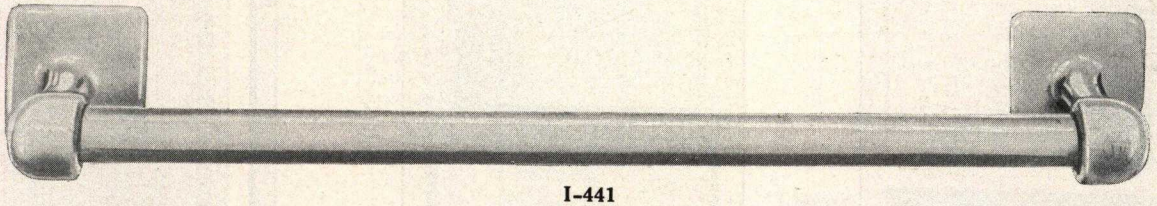
I-456—$3.20
Folded Paper Holder
For Double Fold Paper
with springs
Wall Opening 3x6x2½



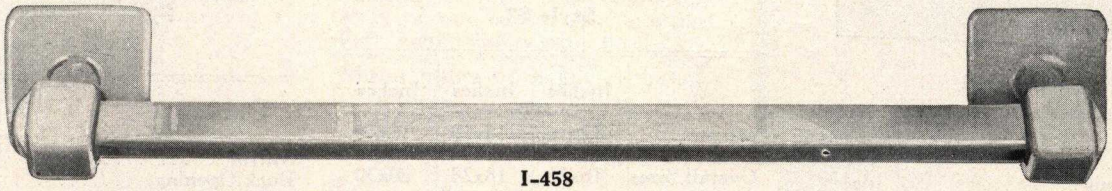
I-2520—$6.00
Folded Paper Holder
1000 Sheet Capacity
with inset lugs or screws
Door Extra.....$1.00



I-360
Opal or Plate Glass Shelves. Inset Lugs on Brackets.
5x18.....**$4.00** 5x24.....**$4.50**
Note—Opal Shelves 5/16-inch thick.
Plate Shelves ¼-inch thick.



I-441
Porcelain Enameled Steel Towel Bars
Base 2⅝x2⅝ with 1-inch inset lug
⅞x18.....**$3.70** ⅞x24.....**$4.20** ⅞x30.....**$4.70**

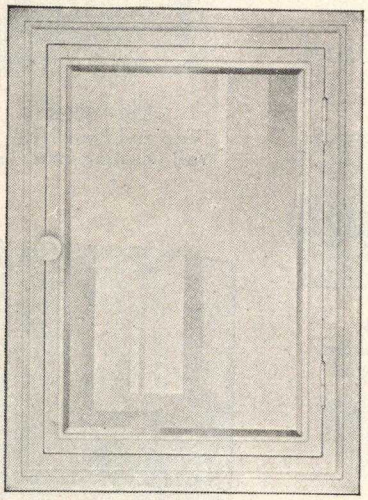


I-458
Porcelain Enameled Square Steel Towel Bars
Base 2⅞x2⅞ with 1-inch inset lug
¾x18.....**$4.70** ¾x24.....**$5.45** ¾x30.....**$6.10**

White and Black carried in stock—All other colors special

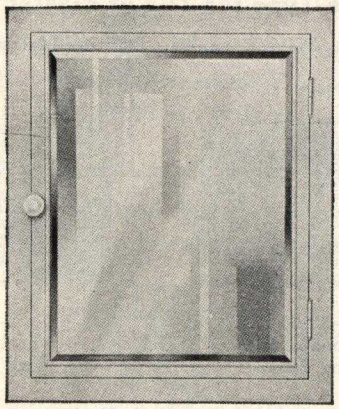
Cabinets for Apartments and Hotels

Made of 20-Gauge Furniture Steel with Corners Securely Electric Butt Welded
Finished with Many Coats of Best Quality Lacquer



Style E1

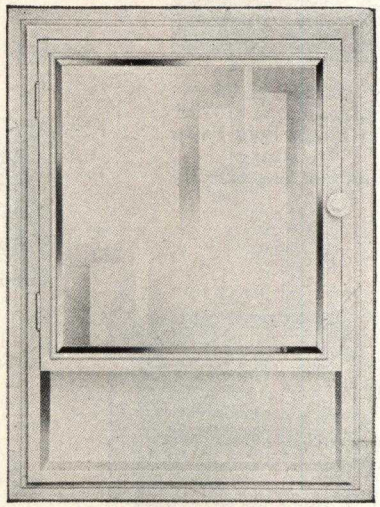
	Inches	Inches
Mirror Size	14x18	16x20
Wall Opening	16x20	18x22
Overall Size	20x24	22x26
Wall Recess	3¼	3¼
Plain Mirror	**$12.90**	**$15.90**
Beveled Mirror	**13.60**	**17.00**



Style S1

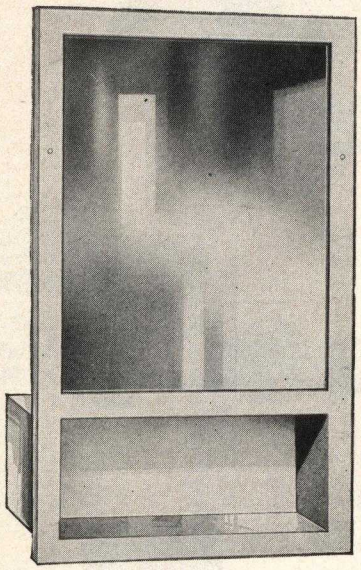
	Inches	Inches	Inches
Mirror	12x16	14x18	16x20
Wall Opening	14x18	16x20	18x22
Overall Size	16x20	18x22	20x24
Wall Recess	4	4	4
Plain Mirror	**$10.00**	**$11.00**	**$12.80**
Beveled Mirror	**10.70**	**12.00**	**14.10**

Other Sizes on Request



Style E2

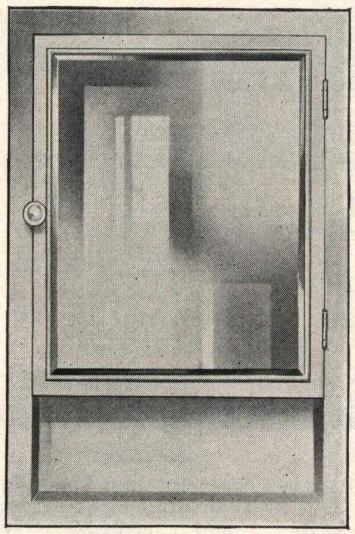
	Inches	Inches
Mirror	14x18	16x20
Wall Opening	16x26	18x28
Overall Size	20x30	22x32
Recess Shelf	4½x15½	4½x17½
Plain Mirror	**$13.20**	**$15.20**
Beveled Mirror	**14.00**	**16.30**



Style S-R

	Inches
Mirror	14x18
Wall Opening	14x6¾
Overall Size	16x27
Recess Depth	4
Recess Height	6
Plain Mirror	**$10.00**
Beveled Mirror	**10.90**

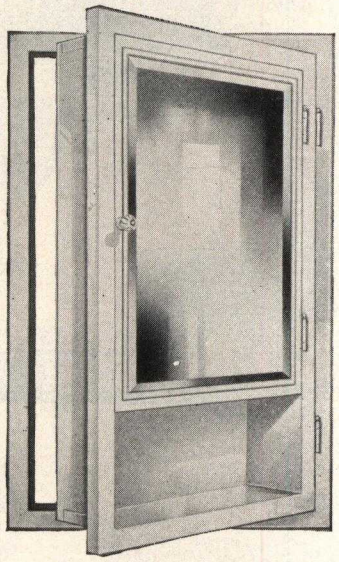
Other Sizes on Application



Style S2

	Inches	Inches	Inches
Mirror	12x16	14x18	16x20
Wall Open'g.	14x24	16x26	18x28
Overall Sizes	16x26	18x28	20x30
6 in. Recess Shelf	4½x13½	4½x15½	4½x17½
Wall Recess.	4	4	4
Plain Mirror	**$11.00**	**$12.00**	**$14.00**
Bev. Mirror.	**11.70**	**13.00**	**15.10**

Other Sizes on Application



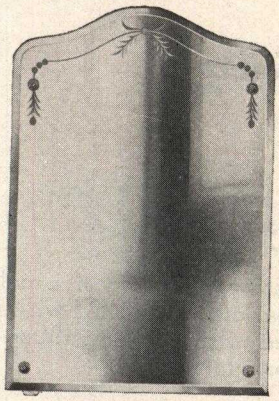
Style A-C

	Inches
Mirror	14x18
Buck Opening	18x28
Outside Frame	20x30
6 in. High Shelf	4½x15½
Plain Mirror	**$17.60**
Beveled Mirror	**18.40**

Other Sizes on Application
Also Concealed Buck Style

GENUINE SNO-WITE ENAMEL

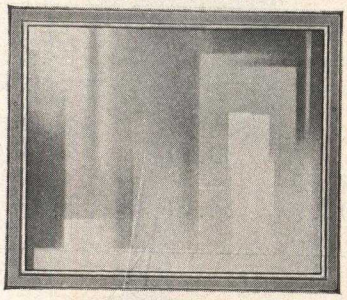
Cabinets and Mirrors



Style D

	Inches	Inches	Inches
Mirror	16x24	18x26	18x32
Wall Opening	14x18	16x20	16x26
Box Overall	16x20	18x22	18x28
Recess	4	4	4
List Price	**$19.00**	**$21.00**	**$26.00**

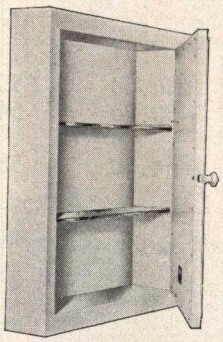
This cabinet can be made with Chromium plated clips instead Rosettes to hold mirror if desired.



Style A

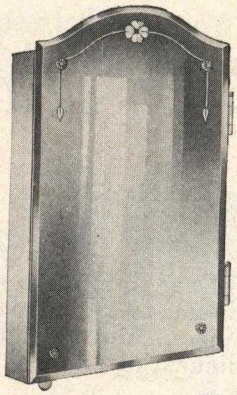
Mirror with 1-inch steel frame, metal back and concealed hangers.

	Inches	Inches	Inches
Mirror	12x16	14x18	16x20
Outside	14x18	16x20	18x22
Plain	**$6.00**	**$6.60**	**$7.20**
Beveled	**6.20**	**7.20**	**7.80**



Wall Type Cabinet
Style W1

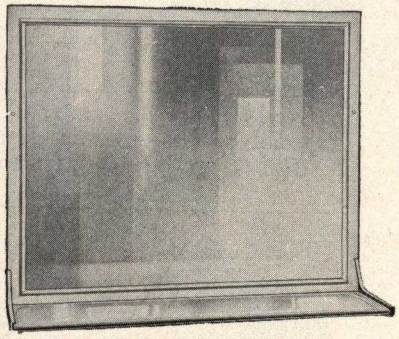
	Inches	Inches
Mirror	14x18	16x20
Cabinet	18x22	20x24
Depth	4¾	4¾
Plain	**$14.00**	**$18.50**
Beveled	**14.70**	**19.70**



Style P200

	Inches
Mirror	12x20
Cabinet	12x18
Depth	5
List Price	**$10.00**

These cabinets are made of the best grade of 20-gauge furniture steel. All corners are electric butt welded.



Style AS

	Inches	Inches
Mirror	12x16	14x18
Overall	14x18	16x20
Shelf	5x16	5x18
Plain	**$6.60**	**$7.20**
Beveled	**7.20**	**7.80**

Mirrors with Polished Metal Frames

Style CL

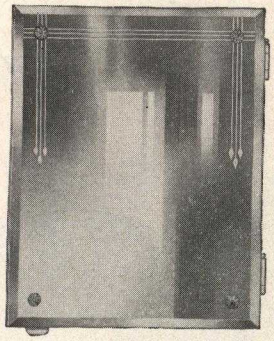
Made in any size for public lavatory work. Frame ½-inch wide furnished with concealed hangers. Frames furnished in high polish chromium metal, or can be obtained in nickel silver, high polish or satin finish.

Mirror, inches	Overall Size, inches
14x18	15x19
16x20	17x21
18x24	19x25
24x30	25x31

Prices on Request.

Other Sizes on Application.

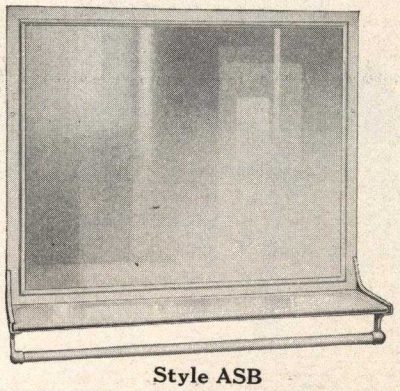
Order All Cabinets or Mirrors by Mirror Size and Style, Letter or Number.



Style J

	Inches	Inches
Mirror	14x18	16x20
Wall Opening	12x16	14x18
Recess	4	4
List Price	**$14.00**	**$17.00**

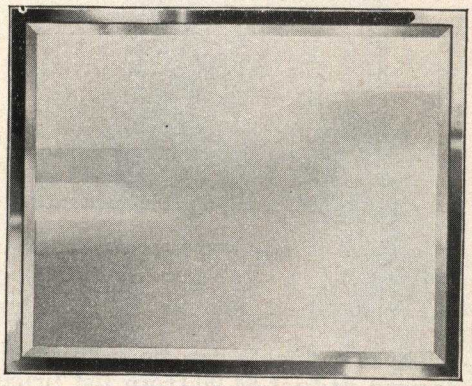
Other Sizes on Request.



Style ASB

	Inches	Inches
Mirror	12x16	14x18
Overall	14x18	16x20
Shelf	5x16	5x18
Bar	¾x16	¾x18
Plain	**$7.00**	**$7.80**
Beveled	**7.70**	**8.40**

These Steel Frame Mirrors and Shelf Combinations are Ideal for the Moderate Priced Hotel Rooms.

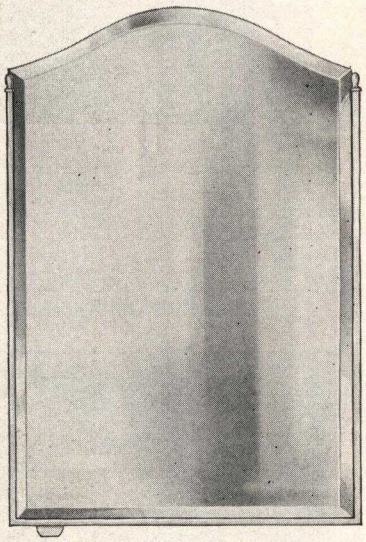


Style CL

Can be installed vertical or horizontal.

New Style Chromium Metal Frame Cabinets

(Patented March 18, 1930, No. 1,751,107)



Style NC Cabinet

Style NC

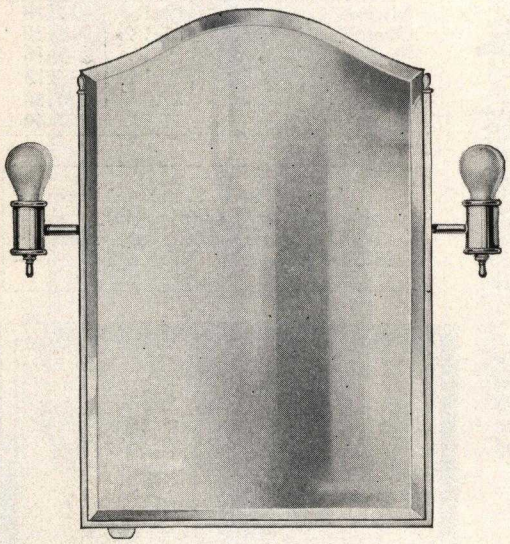
Door frames are made of rust-resisting, non-corrosive polished chrome metal; no plating to peel or wear off. Furnished with piano hinges. Mirrors slide into frame lined with felt or rubber, thus eliminating all breakage in shipment or while in use.

Specifications

	Inches	Inches
Mirror Size	18x26	18x32
Wall Opening	15⅝x19⅝	15⅝x25⅝
Shelves	2	3
Depth	4	4

Prices

Standard Mirror	$26.00	$30.00
Style N10-11-12	30.00	34.00
Special or Modernistic designs, MC-20-21-22-23, V30, G40, CC45 or T50	34.00	38.00



Style NCL Cabinet

Style NCL

This cabinet is the same as Style N, except furnished with cast brass chromium plated electric light brackets. The wiring is enclosed in the flange of the cabinet and ready to connect to outlet box at top of cabinet.

Prices

Standard Mirror	$46.00	$50.00
Styles N10-11-12	50.00	54.00
Styles MC20-21-22-23, V30, G40, CC45 or T50	54.00	58.00

Can be furnished with outlet for electric appliances and switch for controlling the lights.

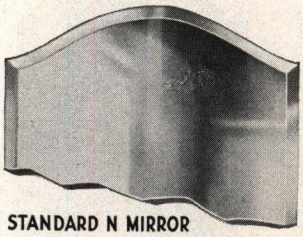
Price—Outlet	$2.00
Switch	2.00

These cabinets can be furnished with chromium plated clips to hold mirror instead of frame. If desired deduct $4.00 from list prices.

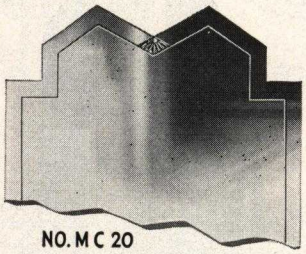
GENUINE TRADE SNO-WITE MARK ENAMEL

New Special Design Mirrors

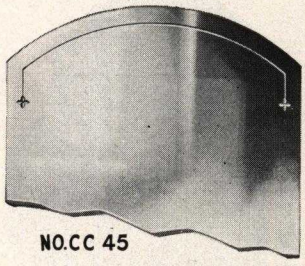
for Use with Style NC or NCL Cabinets Shown on Previous Page



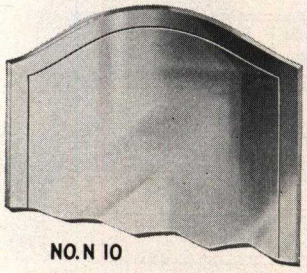
STANDARD N MIRROR



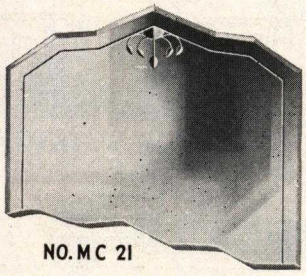
NO. M C 20



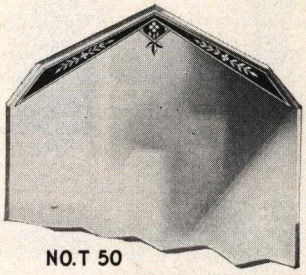
NO. C C 45



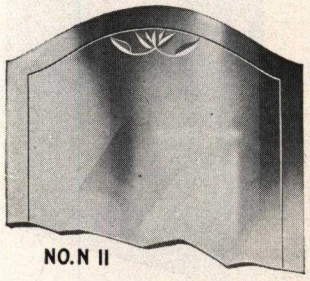
NO. N 10



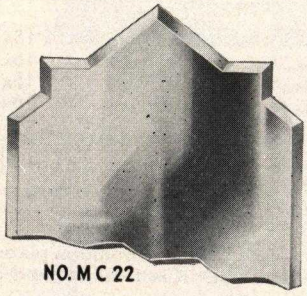
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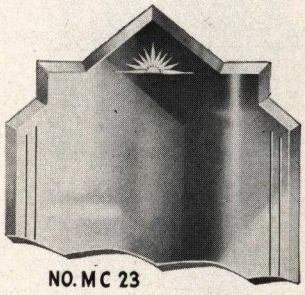
NO. T 50



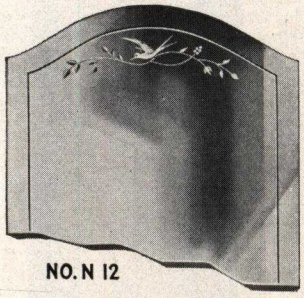
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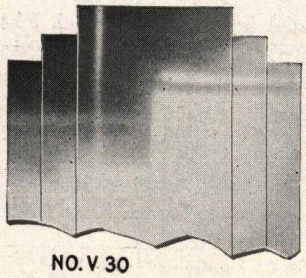
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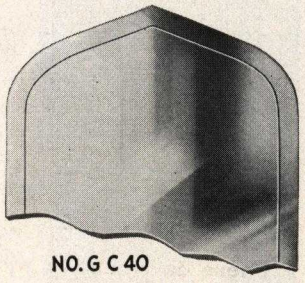
NO. M C 23



NO. N 12



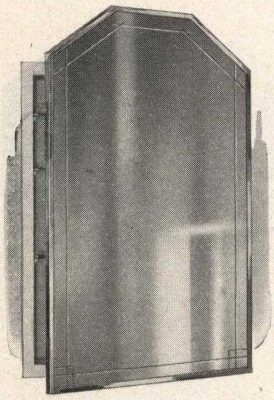
NO. V 30



NO. G C 40

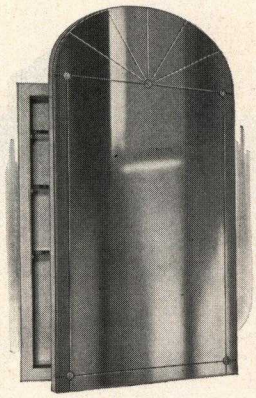
CONANT BROS. COMPANY SOMERVILLE, MASS.

Founded 1856 — The CONANT LINE — 21 Vine Street



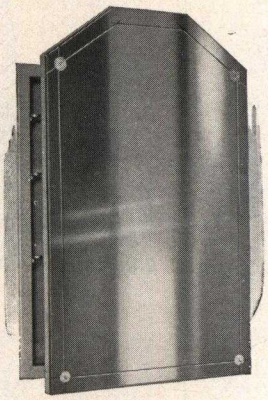
Design A

Conant Bathroom Cabinets



Design B

Conant Quality Mirrors



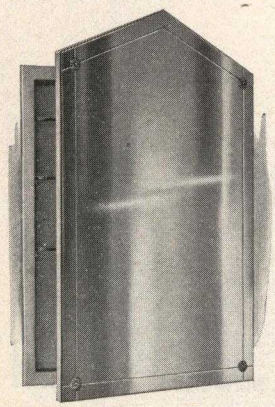
Design C

Cat. No.	Mirror Size Inches	Glass Shelves Inches	Wall Opening Inches	List Price
Cabinets				
80-A	20x30	17½x4	18x24x4½	$50.00
81-A	18x27½	15⅝x4	16x22x4½	40.00
Mirrors Only				
180-A	20x30	.....	.....	30.00
181-A	18x27½	.....	.....	25.00

Equipped with brass frame ⅜" wide chromium plated.

Cat. No.	Mirror Size Inches	Glass Shelves Inches	Wall Opening Inches	List Price
Cabinets				
80-B	20x32	17½x4	18x24x4½	$55.00
81-B	18x28	15⅝x4	16x22x4½	42.00
Mirrors Only				
180-B	20x32	.....	.....	32.00
181-B	18x28	.....	.....	28.00

Cat. No.	Mirror Size Inches	Glass Shelves Inches	Wall Opening Inches	List Price
Cabinets				
80-C	20x30	17½x4	18x24x4½	$50.00
81-C	18x27½	15⅝x4	16x22x4½	40.00
Mirrors Only				
180-C	20x30	.....	.....	30.00
181-C	18x27½	.....	.....	25.00

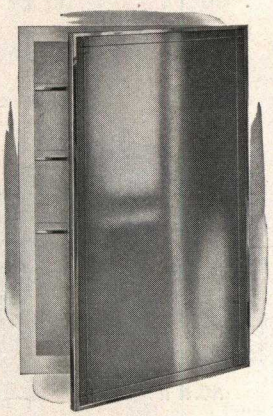


Design D

Designs D and E

Cat. No.	Mirror Size Inches	Glass Shelves Inches	Wall Opening Inches	List Price
Cabinets				
80-D	20x30	17½x4	18x24x4½	$50.00
81-D	18x27½	15⅝x4	16x22x4½	40.00
80-E	20x26	17½x4	18x24x4½	45.00
81-E	18x24	15⅝x4	16x22x4½	35.00
Mirrors Only				
180-D	20x30	.....	.....	30.00
181-D	18x27½	.....	.....	25.00
180-E	20x26	.....	.....	25.00
181-E	18x24	.....	.....	20.00

Design E has brass frame ⅜" wide, chromium plated. Also can be furnished without frame at no extra cost. Rosettes are used in center of each corner.



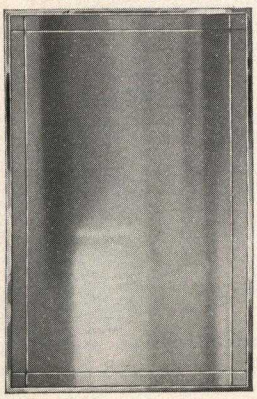
Design E

The above cabinets have First Quality Mirrors with Polished Mitre Lines. Three Adjustable Glass Shelves and Bottom Shelf. Interior of Cabinet and Back of Mirror Door finished in White Sanoid or Color to match any Fixture Color at no Extra Cost.

No. 474 Mirror

With Chromium plated brass frame, French Plate Mirror, Metal Back.

Mirror Inches	List Prices			Mirror Inches	List Prices		
	Plain	Mitre	Bevel		Plain	Mitre	Bevel
12x18	$ 9.00	$ 9.50	$10.50	18x28	$19.00	$20.00	$21.00
14x20	12.00	12.50	13.50	20x30	24.00	26.00	27.00
16x24	15.00	15.60	16.60	.....	.....	.....	.....



No. 474

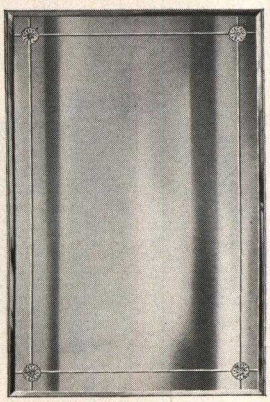
No. 717-H Mirror

Frameless, Steel back in color, French Plate Mirror, narrow bevel, mitred lines, rosettes. Concealed Hangers.

Mirror, Inches	12x18	14x20	16x24
List Prices	$8.30	$10.00	$13.30

Specify color of steel back.

Conant Cabinets and Mirrors can be furnished to special design, on order.



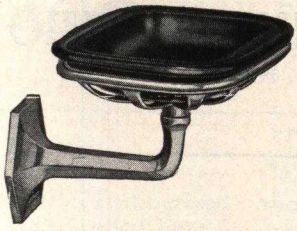
No. 717-H

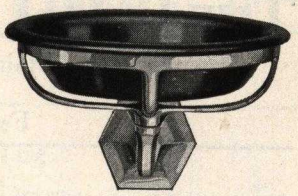
Conant Solid Brass Accessories

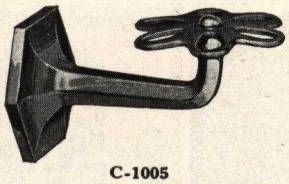
Concealed Screw Design

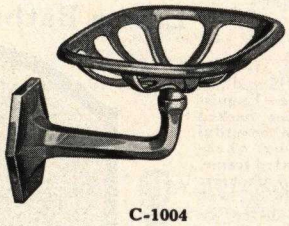
Hexagonal and Round Base

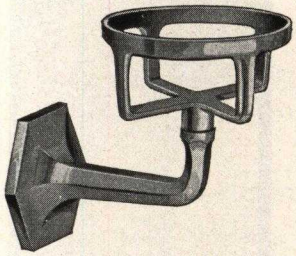
Hexagonal Illustrated


C-1001

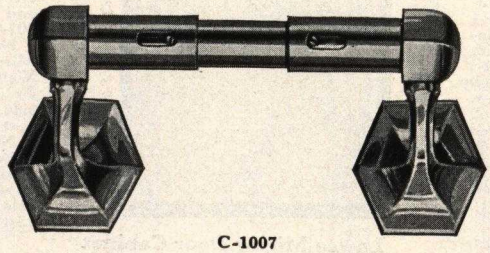

C-1002

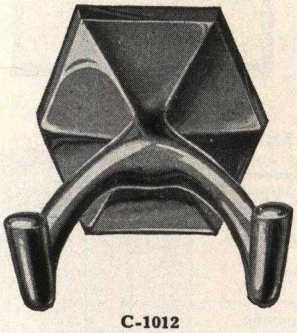

C-1005

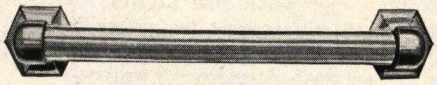

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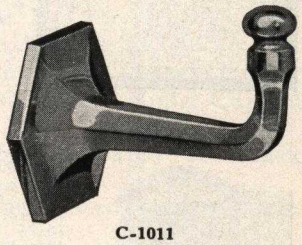

C-1003

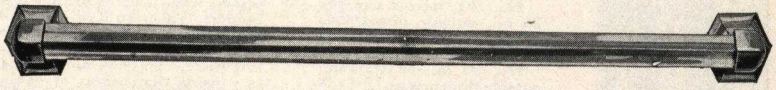

C-1008

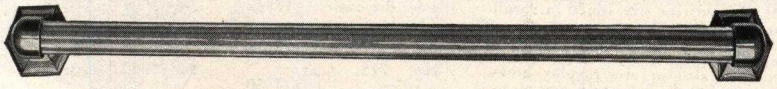

C-1007

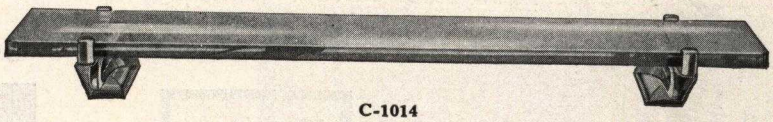

C-1012


C-1015


C-1011


C-1009


C-1010


C-1014

Conant concealed accessories consist of two parts, the fixture itself and the concealed back disk. The disk is attached to the wall first and the fixture is then installed over the disk, and secured to disk by set screw in bottom of fixture.

The above fixtures are solid brass, chromium plated. They can also be furnished finished in Sanoid, white or colored at the same price as for chromium. Brushed Chromium, Silver Plate, Satin Gold or Roman Gold furnished to order at special prices.

Description and List Prices

Hex. Base No.	Hex. Base List	Description	Round Base No.	Round Base List
C-1001	$5.70	Soap Holder	C-2001	$4.70
C-1002	5.60	Soap Holder	C-2002	4.40
C-1003	4.70	Tumbler Holder, incl. tumbler	C-2003	3.80
C-1004	5.30	Shower Soap Holder	C-2004	4.30
C-1005	3.80	Toothbrush Holder	C-2005	2.80
C-1007	8.00	Toilet Paper Holder	C-2007	6.40
C-1008	5.50	Soap Holder	C-2008	4.40
C-1009	10.40	Towel Bar, 18"x⅞"	C-2009	9.40
C-1009	11.60	Towel Bar, 24"x⅞"	C-2009	10.60
C-1009	12.70	Towel Bar, 30"x⅞"	C-2009	11.70
C-1009	13.90	Towel Bar, 36"x⅞"	C-2009	12.90
		Above have ⅞"x⅞" square glass bars. For all metal square bars chromium plated, deduct 20% from list.		
C-1010	8.00	Towel Bar, 18"x1"	C-2010	7.00
C-1010	$8.40	Towel Bar, 24"x1"	C-2010	$7.40
C-1010	8.80	Towel Bar, 30"x1"	C-2010	7.90
C-1010	9.30	Towel Bar, 36"x1"	C-2010	8.30
		C-1010 and C-2010 Bars with either 1" round glass or metal bars.		
C-1011	2.70	Bathroom Hook	C-2011	1.70
C-1012	3.00	Double Hook	C-2012	2.40
C-1014	11.00	Glass Shelf, 18"x5"	C-2014	9.30
C-1014	11.80	Glass Shelf, 24"x5"	C-2014	10.20
C-1014	12.90	Glass Shelf, 30"x5"	C-2014	11.30
C-1015	7.00	Grab Bar, all metal, 1"x9" center to center	C-2015	6.00
C-1017	12.50	Grab Bar (Crystal) 1½"x12" center to center	C-2017	11.50
C-1068	7.00	Toothbrush and Tumbler Holder including tumbler	C-2068	6.70

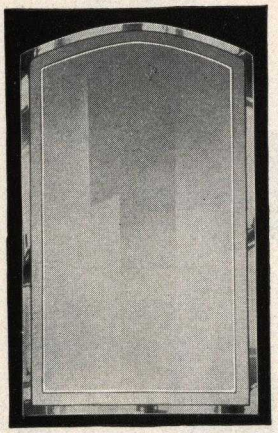
Glass can be furnished in clear crystal, white opal (vitrolite) or black.

We also make a complete line of fixtures with Hex. Base and Round Base but with exposed screws. Complete Catalog on request.

THE F. H. LAWSON COMPANY CINCINNATI, OHIO

Main Factory and Offices—Evans, Whately, Boston and B. & O. R. R.
BRANCH OFFICES: NEW YORK, N. Y. AND CHICAGO, ILL.
Famous Since 1816 as Manufacturers of High Grade Metal Products

Lawco Bathroom Cabinets

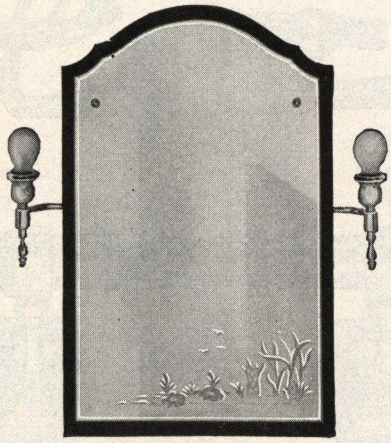


Nos. 915 and 925 De Luxe—Exquisite copper backed mirror in beautiful lacquer or chromium plated frame.

No. 915, door size 15½x25½ in., wall opening 12¾x19½ x3½ in.

No. 925 door, size 18x32 in., wall opening 15⅜x26⅞x3½ in., outside dimensions 17¾x29⅜ in.

No. 915 (lacquered frame)....$24.60
No. 915 (chromium plated)...$31.60
No. 925 (lacquered frame)....$40.60
No. 925 (chromium plated)...$50.60



Lawco Mirror Door Cabinet with Side Lights

A mirror-cabinet for modern bathrooms. Graceful design—copper backed mirror etched in new water-lily and cattail motif. Attractive side brackets, furnishing even illumination for mirror, enough light for whole bathroom. Cabinet has switch and convenience plug. Furnished with black, orchid, green mirror-borders. Venetian style mirror, with pan-shaped door, door stop, concealed hinges, removable door. A fine cabinet at a very low price. Outside dimensions 17x23½ in.; inside dimensions of cabinet 14¼x 20¾x4¼ in.; mirror size 18x28 in.; wall opening 14¾x21¼x2¾ in.

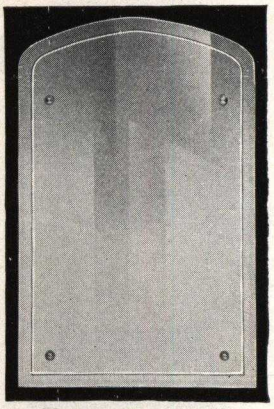
No. LX (completely wired, with switch, convenience plug), list price $36.60 (can be furnished also in our regular bow-shaped mitred line mirror or flower etched mirror, same price). Bears Underwriters' Label.

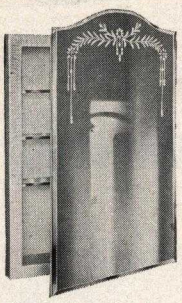
Nos. 800, 801, 802, 803, 900, 901, 902, 903—Beautiful De Luxe construction copper backed Mirrors.

Mirror Styles—800-900, Mitre Line; 801-901, Flowered; 802 - 902, Colored Border; with Swan and Water Lily; 803-903, Colonial.

No. 800 Series—Mirror 18x28 in., Wall Opening 15¼x 20¾x3½ in., Outside 17¾x23¼ in. List Price...$34.10

No. 900 Series—Mirror 20x36 in., Wall Opening 17½x 28¼x3½ in., Outside 19¾x30¾ in. List Price...$42.10





Nos. 780, 785 and 795—No. 780 standard. Large Venetian type at medium price. Outside dimensions 15½x21½ in., mirror size 16x24 in., wall opening 13½x19½x3 in.

No. 785, mirror size 18x 26 in., outside dimensions 17½x23½ in., wall opening 15½x21½x3 in.

No. 795, mirror 18x32 in., outside dimensions 17½x29 in., wall opening 15x26½ x3¼ in.

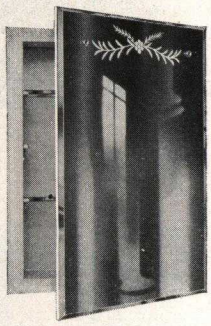
No. 780, 785, 795, cabinets have copper backed mirrors.
No. 780, list price...$16.60
No. 785, list price... 20.60
No. 795, list price... 23.60

Nos. 750 and 775—Junior. Quality and beauty of appearance at low cost. Have copper backed mirrors.

No. 750, mirror size 16x22 in., wall opening 13½x19½x3 in., outside dimensions 15½x 21½ in.

No. 775, mirror size 18x24 in., wall opening 15½x21½x3 in., outside dimensions 17½x 23½ in.

No. 750, List price.....$15.60
No. 775, List price.....$17.50



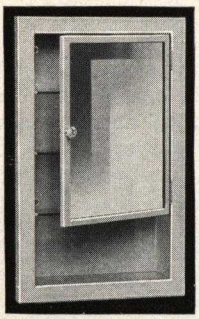
Lawco Challengers

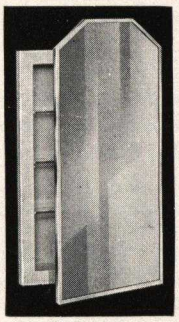
Nos. 5600 and 5650—Extremely low priced. Highest grade materials and workmanship. A superlative cabinet value.

No. 5600, plain mirror, size 12x16 in., wall opening 13⅜x23⅜x3⅜ in. Outside dimensions 16x26x1¼ in.

No. 5650, plain mirror, size 14x18 in., wall opening 15⅜x25⅜x3⅜ in., outside dimensions 18x28x1¼ in.

No. 5600, list price.....$10.00
No. 5650, list price..... 12.00



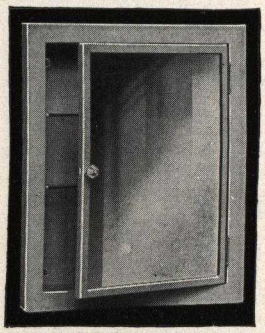


No. 56 Challenger—In keeping with modern simplicity. Beautiful lines. Chromium plated steel frames, cabinets finished in Lawco Vitro-like White Enamel resembling porcelain. Copper backed mirrors.

No. 56, door size 16x30 in., wall opening 12⅞x23⅜x3⅜ in. Three heavy, bulb-edge shelves.

No. 56, list price.....$24.60

Mitred line mirror can be furnished at an extra list price of $5.00 per cabinet.



Nos. 3100, 4100 and 5100—Challengers on price, quality, utility. Bulb-edge shelves.

No. 3100, plain mirror, size 12x16 in., wall opening 13⅜x17⅜x3⅜ in. Outside dimensions 16x20x1¼ in.

No. 4100, plain mirror, size 14x18 in., wall opening 15⅜x19⅜x3⅜ in. Outside dimensions 18x22x1¼ in.

No. 5100, plain mirror, size 16x20 in., wall opening 17⅜x21⅜x3⅜ in. Outside dimensions 20x24x1¼ in.

No. 3100, list price.....$ 8.50
No. 4100, list price..... 10.50
No. 5100, list price..... 12.50

Nos. 31, 41 and 51—Lawco Challengers are made of heavy materials, with chromium-plated steel frames. The workmanship is the usual Lawco quality. They have aristocratic appeal, yet are made for the modest budget. Copper backed mirrors.

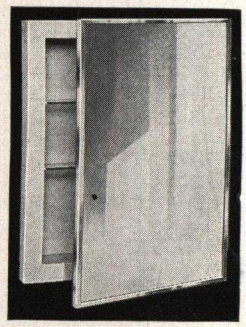
No. 31, door, size 16x21 in., wall opening 12⅞x17⅜x3⅜ in.

No. 41, door, size 18x23 in., wall opening 14⅞x19⅜x3⅜ in.

No. 51, door, size 21⅛x27⅛ in., wall opening 18x24x3⅜ in.

No. 31, list price.....$18.10
No. 41, list price..... 21.10
No. 51, list price..... 24.10

Mitred Line Mirror can be furnished at an extra cost of $5.00 per cabinet, list.



Copper Backed Mirrors Will Last Five Times The Average.

ACME SHOWER CURTAIN COMPANY — CHICAGO, ILL.

1039 North Crawford Avenue

Aqua-Tex

Non-Rubberized Shower Curtains. Waterproof. Guaranteed Fast Colors. Floral Design.

Craf-Tex

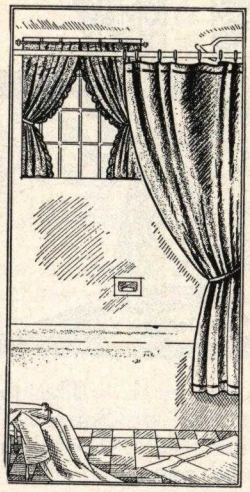
Water Repellent Shower Curtains—Pastel Shades—Silk Rayon.

Georgene

Rubberized Shower Curtains — Silk Rayon—Dobby Rayon—Cretonne.

Acme

White and Colored Duck Shower Curtains—White Duck of various grades—5 oz., 6½ oz., 7 oz., 8 oz., 9¼ oz., 10¼ oz., and 12 oz., and 8 oz. Vat Colored Ducks in pastel shades.



Aqua-Tex

Non-Rubberized Window Drapes — Ruffles — Tie-Backs—Valance—Split Width—Waterproof—Guaranteed Fast Colors.

Craf-Tex

Water Repellent Window Drapes—Silk Rayon—Pastel Shades.

Georgene

Rubberized Window Drapes — Silk Rayon—Dobby Rayon—Cretonne.

Acme

Shower Curtain Accessories.
Nickel or Chrome Plated Curtain Hooks.
Nickel or Chrome Plated Roller Curtain Hooks.
Nickel or Chrome Plated Holdback Chains.
Nickel or Chrome Plated Curtain Rods.

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Factory Branches
100 W. 25th St., New York, N. Y. 155 New Montgomery St., San Francisco, Cal.

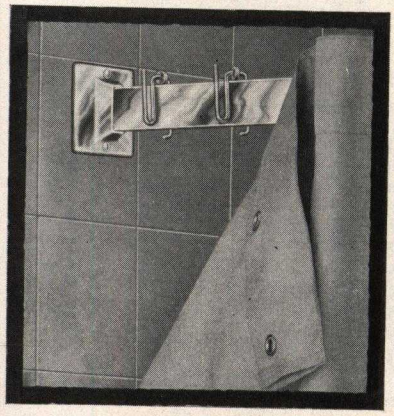
A New Shower Rod and Shower Curtain Drape Hanging

M-D

Shower Curtain Combination

Permanent Beauty Easy Sliding
Hooks and Grommets Not Exposed

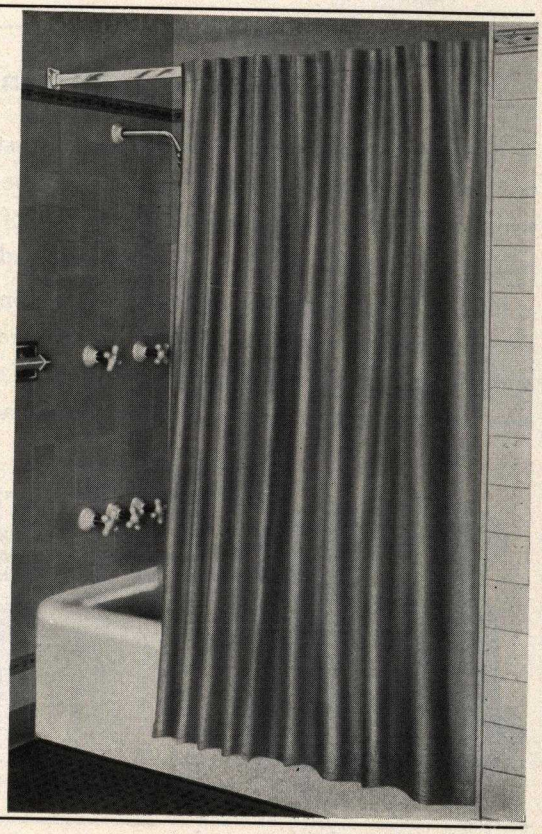
This new shower rod and curtain offers a complete change in shower curtain hanging, replacing the safety pin hooks and uneven, drooping curtain.



Roller bearing snapless hooks as illustrated at the left permit easy sliding and effortless attaching and detaching of curtain. Modern type rectangular tubing is chromium plated. Any of our various grades of shower bath curtains can be supplied with the M-D Combination.

Write for circulars and prices.

Patented



VULCATEX, INC. CHICAGO, ILL.

Office and Factory: 11 East Austin Avenue

MANUFACTURERS OF

Protexwell Shower Curtains and Moldcraft Accessories

Protexwell-Waterproof Non-Rubber Shower Curtains of Pure Japanese Silks and Cotton Lawns

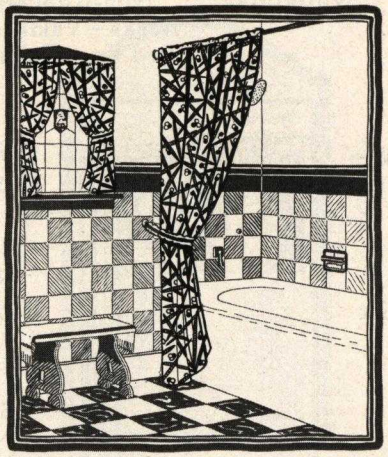
Plumbing Contractors and Wholesalers will find the Protexwell line of Shower Curtains a decided asset when supplying the needs of distinctive customers.

They can be furnished in a wide assortment of plain colors and fancy prints that are carried in stock at all times.

Shower Curtains also made from:

Guaranteed Shrink Proof White Duck
Fast Colored Duck—Mildew Resistant
DuPhite Treated Water Repellant Fabrics

We welcome requests for samples and special quotations.



Moldcraft Accessories of Moulded Vulcatite

The Moldcraft Line of Colored Bathroom Accessories give added beauty to the modern bathroom. They are strong, durable, non-corrosive, odorless, tasteless, chemically inert and resistive. The colors are through and through and will not crack, insuring permanent beauty.

All fixtures are easily installed by slipping in place on Moulded Wedge that is attached to the wall by two screws.

The following fixtures are available—Round and Square Towel Rails—Soap Dishes—Tumbler and Toothbrush Holders—Paper Holder—One Piece Shelf.

Colors

Green—Orchid—Blue—Black

Utility Products for the Modern Bathroom

JENNISON COMPANY FITCHBURG, MASS.

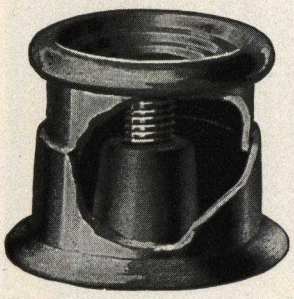
Jennison Adjustable Foot Rest

The Jennison Adjustable Foot Rest is constructed of two iron castings that open by turning the top part which is made so that any fixture or article of furniture will fit and be adjusted to any angle required.

Due to the settling of buildings floors become uneven causing radiators to pitch at wrong angles, resulting in a strain on the piping, improper drainage of condensation, water hammer, and unpleasant appearance. The Jennison Adjustable Foot Rest is especially adaptable for correcting an uneven slant to a radiator.

The Jennison Adjustable Foot Rest can also be used to level stoves, insuring an even fire, saving coal, and assisting proper baking.

The Adjustable Foot Rest can be used to give the correct slant to a bath tub for proper drainage. Also adaptable for use on refrigerators to insure their draining correctly.



Numbers, Sizes and List Prices

Number	Height Closed Inches	Height Open Inches	Length of Adjustment Inches	Diameter of Bottom Inches	Diameter of Top Inches	Price
1	7/8	1 1/4	3/8	2 1/2	2	$0.30
2	1 1/4	1 5/8	1/2	2 1/2	2	.35
B3	1	1 3/8	3/8	3	2 1/2	.40
3	1 1/2	2	1/2	3	2 1/2	.45
4	2	2 3/4	3/4	3	2 1/2	.50
5	3	3 3/4	3/4	3	2 1/2	.55
6	4	4 3/4	3/4	3	2 1/2	.60

BURNHAM BOILER CORPORATION, IRVINGTON, N. Y.

Branch Offices and Warehouses

Baltimore, Md., 1201 Haubert St.
Boston (Cambridge), Mass., 195 Albany St.
Chicago, Ill., 1038 So. Kolmar Ave.
Queens Village, L. I., 222nd St. and L. I. R. R.
Elizabeth, N. J., 701 Spring St.
Zanesville, Ohio, Licking View.
Toronto, Can., Harbour Commission Bldg.
Lancaster, Pa.
Philadelphia, Pa., 31st and Jefferson St.
Springfield, Mass., 153 Plainfield St.
San Francisco, Cal., 960 Folsom St.
Irvington, N. Y., 2 Main St.
Pittsburgh, Pa., 301 Brushton Ave.
Shanghai, China, 151 Avenue Foch.

Factories

ELIZABETH, N. J. LANCASTER, PA. ZANESVILLE, OHIO



No. 1 Series

Burnham Jacketed Boilers

Burnham Jacketed Boilers should not be compared with the average encased boiler. We did not build a boiler to fit a jacket, just to meet competitive conditions.

Within the beautiful Red and Black Baked Enamel Steel Jackets, you will find our regular Tube Type Series Boilers which have proven superior for years.

Both of the boilers in our Jacketed Series incorporate the well known "Three times back and forth fire travel." This can only be successfully accomplished in boilers of our design.



No. 3 Series

Ratings

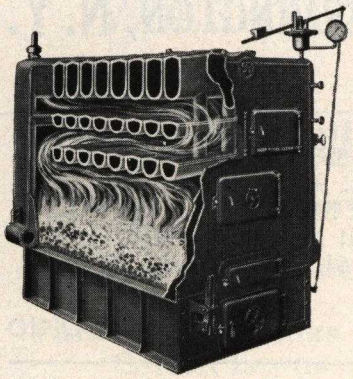
Steam

Number of Boiler	Catalog Ratings Square Feet		E. D. R. Ratings Square Feet		Number of Sections	Supply and Return Tappings Inches	Grate Area Sq. Ft.	Size at Grate Line Inches	Length of Base Inches	Overall Height Inches	Overall Length Inches	Chimney Size In. Ft.	Water Line Inches
	Coal	*Oil	Coal	*Oil									
1-S-5	500	580	315	395	4	2–3	1.7	17½x14	22	48	40½	8x 8x30	39
1-S-6	650	750	400	500	5	2–3	2.2	17½x18	26	48	44½	8x 8x30	39
1-S-7	800	920	485	605	6	2–3	2.7	17½x22	30	48	48½	8x12x35	39
1-S-8	950	1090	570	710	7	2–3	3.2	17½x26	34	48	52½	8x12x35	39
1-S-9	1100	1260	655	815	8	2–3	3.7	17½x30	38	48	56½	8x12x35	39
1-S-10	1250	1430	740	920	9	2–3	4.2	17½x34	42	48	60½	8x12x40	39
3-S-5	1225	1410	800	1000	5	2–4	4.74	27x25¼	32¼	58	42¾	12x12x35	47
3-S-6	1600	1840	1050	1315	6	2–4	5.86	27x31¼	38¼	58	48¾	12x12x40	47
3-S-7	1975	2270	1300	1630	7	2–4	6.98	27x37¼	44¼	58	54¾	12x16x40	47
3-S-8	2350	2700	1550	1945	8	3–4	8.11	27x43¼	50¼	58	60¾	16x16x45	47
3-S-9	2725	3130	1800	2260	9	3–4	9.23	27x49¼	56¼	58	66¾	16x16x50	47
3-S-10	3100	3560	2050	2575	10	3–4	10.34	27x55¼	62¼	58	72¾	16x20x50	47
3-S-11	3475	3990	2300	2890	11	3–4	11.48	27x61¼	68¼	58	78¾	16x20x55	47
3-S-12	3850	4420	2550	3205	12	4–4	12.61	27x67¼	74¼	58	84¾	20x20x60	47
3-S-13	4225	4850	2800	3520	13	4–4	13.73	27x73¼	80¼	58	90¾	20x20x60	47

Water

1-W-5	850	970	505	630	4	2–3	1.7	17½x14	22	48	40½	8x 8x30	.....
1-W-6	1100	1260	640	800	5	2–3	2.2	17½x18	26	48	44½	8x 8x30	.....
1-W-7	1350	1550	775	970	6	2–3	2.7	17½x22	30	48	48½	8x12x35	.....
1-W-8	1600	1840	910	1140	7	2–3	3.2	17½x26	34	48	52½	8x12x35	.....
1-W-9	1850	2130	1045	1310	8	2–3	3.7	17½x30	38	48	56½	8x12x35	.....
1-W-10	2100	2420	1180	1480	9	2–3	4.2	17½x34	42	48	60½	8x12x40	.....
3-W-5	2000	2300	1280	1600	5	2–4	4.74	27x25¼	32¼	58	42¾	12x12x35	.....
3-W-6	2600	2990	1680	2105	6	2–4	5.86	27x31¼	38¼	58	48¾	12x12x40	.....
3-W-7	3200	3680	2080	2610	7	2–4	6.98	27x37¼	44¼	58	54¾	12x16x40	.....
3-W-8	3800	4370	2480	3115	8	3–4	8.11	27x43¼	50¼	58	60¾	16x16x45	.....
3-W-9	4400	5060	2880	3620	9	3–4	9.23	27x49¼	56¼	58	66¾	16x16x50	.....
3-W-10	5000	5750	3280	4125	10	3–4	10.34	27x55¼	62¼	58	72¾	16x20x50	.....
3-W-11	5600	6440	3680	4630	11	3–4	11.48	27x61¼	68¼	58	78¾	16x20x55	.....
3-W-12	6200	7130	4080	5135	12	4–4	12.61	27x67¼	74¼	58	84¾	20x20x60	.....
3-W-13	6800	7820	4480	5640	13	4–4	13.73	27x73¼	80¼	58	90¾	20x20x60	.....

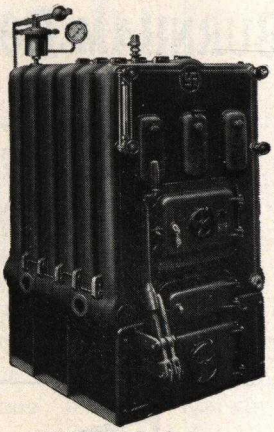
*When Boilers are wanted for Oil Burning, use Boiler Numbers as shown, followed by the word "Oil." Example: "1-S-5 Oil."



36-Inch Series

Burnham Square Sectional Boilers

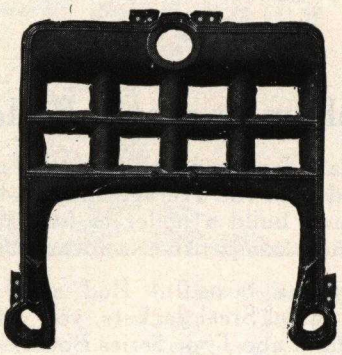
Burnham Square Sectional Boilers are of the Superior Tube Type Design, incorporating our well known "Three times back and forth Fire Travel," the big fuel saver.



21 and 27-Inch Series

For
Coal Burning
Oil Burning
Smokeless
Gas Fired
Stoker Fired

Illustration at the right shows the rounded surfaces that not only mean more heating surface, but add tremendous strength to the castings.



Measurements

Series	Overall Height Inches	Water Line Inches
17-Inch	48	39
21-Inch	52½	43¼
27-Inch	58	47
36-Inch	65	52

Ratings

Boiler No.	Steam: Catalog Rating Square Feet Coal	Steam: Catalog Rating Square Feet *Oil	Steam: E. D. R. Rating Square Feet Coal	Steam: E. D. R. Rating Square Feet *Oil	Steam and Water: Number of Sections	Supply and Return Tappings Inches	Grate Area Sq. Ft.	Size of Grate Inches	Length of Base Inches	Length of Combustion Chamber	Overall Length Inches	Chimney Size In.—Ft.	Water: E. D. R. Rating Square Feet Coal	Water: E. D. R. Rating Square Feet *Oil	Water: Catalog Rating Square Feet Coal	Water: Catalog Rating Square Feet *Oil	Boiler No.
17-Inch Series																	
1705-S	500	580	315	395	4	2–3	1.7	17½x14	22	14	40½	8x 8x30	505	630	850	970	1705-W
1706-S	650	750	400	500	5	2–3	2.2	17½x18	26	18	44½	8x 8x30	640	800	1100	1260	1706-W
1707-S	800	920	485	605	6	2–3	2.7	17½x22	30	22	48½	8x12x35	775	970	1350	1550	1707-W
1708-S	950	1090	570	710	7	2–3	3.2	17½x26	34	26	52½	8x12x35	910	1140	1600	1840	1708-W
1709-S	1100	1260	655	815	8	2–3	3.7	17½x30	38	30	56½	8x12x35	1045	1310	1850	2130	1709-W
1710-S	1250	1430	740	920	9	2–3	4.2	17½x34	42	34	60½	8x12x40	1180	1480	2100	2420	1710-W
21-Inch Series																	
2105-S	800	920	500	630	5	2–3	3.28	21x22½	26	22½	35	8x12x35	800	1000	1300	1480	2105-W
2106-S	1000	1150	625	785	6	2–3	4.01	21x27½	31	27½	40	12x12x35	1000	1250	1600	1830	2106-W
2107-S	1200	1380	750	940	7	2–3	4.74	21x32½	36	32½	45	12x12x35	1200	1500	1900	2180	2107-W
2108-S	1400	1610	875	1095	8	3–3	5.47	21x37½	41	37½	50	12x12x40	1400	1750	2200	2530	2108-W
2109-S	1600	1840	1000	1250	9	3–3	6.20	21x42½	46	42½	55	12x12x40	1600	2000	2500	2880	2109-W
2110-S	1800	2070	1125	1405	10	3–3	6.93	21x47½	51	47½	60	12x16x40	1800	2250	2800	3230	2110-W
2111-S	2000	2300	1250	1560	11	4–3	7.66	21x52½	56	52½	65	12x16x40	2000	2500	3100	3580	2111-W
27-Inch Series																	
2705-S	1225	1410	800	1000	5	2–4	4.74	27x25¼	31	25¼	41½	12x12x35	1280	1600	2000	2300	2705-W
2706-S	1600	1840	1050	1315	6	2–4	5.86	27x31¼	37	31¼	47½	12x12x40	1680	2105	2600	2990	2706-W
2707-S	1975	2270	1300	1630	7	2–4	6.98	27x37¼	43	37¼	53½	12x16x40	2080	2610	3200	3680	2707-W
2708-S	2350	2700	1550	1945	8	2–4	8.11	27x43¼	49	43¼	59½	16x16x45	2480	3115	3800	4370	2708-W
2709-S	2725	3130	1800	2260	9	3–4	9.23	27x49¼	55	49¼	65½	16x16x50	2880	3620	4400	5060	2709-W
2710-S	3100	3560	2050	2575	10	3–4	10.34	27x55¼	61	55¼	71½	16x20x50	3280	4125	5000	5750	2710-W
2711-S	3475	3990	2300	2890	11	3–4	11.48	27x61¼	67	61¼	77½	16x20x55	3680	4630	5600	6440	2711-W
2712-S	3850	4420	2550	3205	12	4–4	12.61	27x67¼	73	67¼	83½	20x20x60	4080	5135	6200	7130	2712-W
2713-S	4225	4850	2800	3520	13	4–4	13.73	27x73¼	79	73¼	89½	20x20x60	4480	5640	6800	7820	2713-W
36-Inch Series																	
3606-S	3200	3670	1850	2315	6	2–4	8.13	36x32½	39	32½	52	16x20x45	2960	3700	5185	5960	3606-W
3607-S	3850	4420	2175	2720	7	3–4	9.63	36x38½	45	38½	58	16x20x50	3480	4350	6285	7220	3607-W
3608-S	4500	5170	2500	3125	8	3–4	11.13	36x44½	51	44½	64	20x20x50	4000	5000	7385	8490	3608-W
3609-S	5150	5920	2825	3530	9	3–4	12.63	36x50½	57	50½	70	20x20x50	4520	5650	8485	9750	3609-W
3610-S	5800	6670	3150	3935	10	3–4	14.13	36x56½	63	56½	76	20x20x55	5040	6300	9585	11020	3610-W
3611-S	6450	7420	3475	4340	11	4–4	15.63	36x62½	69	62½	82	20x20x55	5560	6950	10685	12280	3611-W
3612-S	7100	8170	3800	4745	12	4–4	17.13	36x68½	75	68½	88	20x24x60	6080	7600	11785	13550	3612-W
3613-S	7750	8920	4125	5150	13	5–4	18.63	36x74½	81	74½	94	24x24x60	6600	8250	12885	14810	3613-W
3614-S	8400	9670	4450	5555	14	5–4	20.13	36x80½	87	80½	100	24x24x60	7120	8900	13985	16080	3614-W
3615-S	9050	10420	4775	5960	15	5–4	21.63	36x86½	93	86½	106	24x24x60	7640	9550	15085	17340	3615-W

*When Boilers are wanted for Oil Burning, use Boiler Numbers as shown, followed by the word "Oil." Example: "1705-S-Oil."

Smokeless

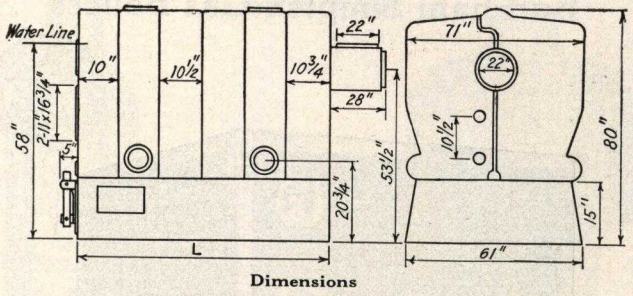
Smokeless Ratings and Data same as regular coal burning boilers. When Smokeless Boilers are wanted, use Numbers as shown, followed by word "Smokeless." Example: "2105-S-Smokeless."

Burnham 50-Inch Twin Series

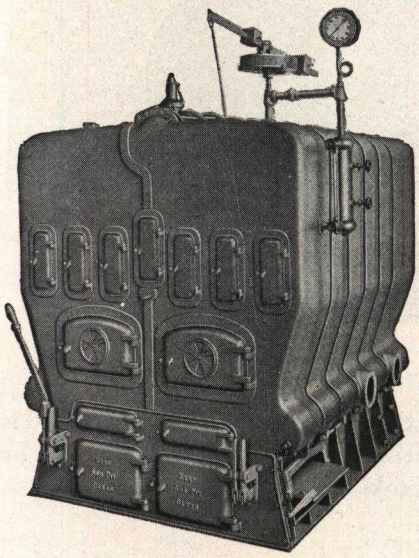
This big 50-inch Twin Section Sectional Cast Iron Boiler incorporates every desirable feature expected and needed in a boiler this size.

They are admirably suited for apartment houses, churches, hotels, theatres, schools and other public buildings.

The superior design permits the use of all fuels.



Dimensions



For Coal—Oil Gas—Stoker

Ratings—Steam

Boiler Number	Catalog Rating Square Feet		E. D. R. Rating Square Feet		Supply and Return Tappings Inches	Grate Area Sq. Ft.	"L" Length of Base Inches	Overall Length Inches
	Coal	*Oil	Coal	*Oil				
5006-S	7850	9030	6280	7850	3–5	19.27	63	96
5007-S	9300	10700	7350	9190	3–5	22.92	73½	106½
5008-S	10750	12370	8390	10490	4–5	26.56	84	117
5009-S	12200	14040	9390	11740	4–5	30.20	94½	127½
5010-S	13650	15710	10370	12960	5–5	33.85	105	138
5011-S	15100	17380	11320	14150	5–5	33.85	115½	148½
5012-S	16550	19050	12250	15310	5–5	33.85	126	159
5013-S	18000	20720	13180	16420	5–5	33.85	136½	169½
5014-S	19450	22390	14110	17520	5–5	33.85	147	180

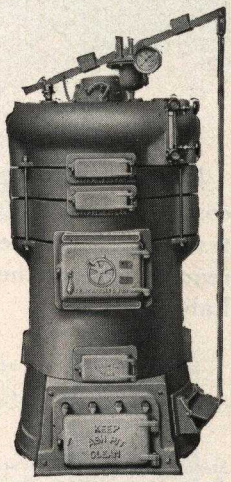
Ratings—Water

5006-W	10050	12560	12600	15000	4–5	19.27	63	96
5007-W	11760	14700	15000	17760	4–5	22.92	73½	106½
5008-W	13425	16780	17400	20520	5–5	26.56	84	117
5009-W	15025	18780	19800	23280	5–5	30.20	94½	127½
5010-W	16590	20730	22200	26040	6–5	33.85	105	138
5011-W	18100	22640	24600	28800	6–5	33.85	115½	148½
5012-W	19600	24500	27000	31560	6–5	33.85	126	159
5013-W	21190	76270	29400	34320	6–5	33.85	136½	169½
5014-W	22780	28030	31800	37080	6–5	33.85	147	180

*When Boilers are wanted for Oil Burning, use Boiler Numbers as shown, followed by the word "Oil." Example: "5006-S-Oil."

Burnham Round Sectional Boilers

The Burnham Round Sectional Boilers are constructed on sound scientific principles. They are particularly adapted for small and medium size residences, small stores, 2-apartment buildings, etc.



Five Section Steam Boiler

For Coal—Oil—Gas—Stoker

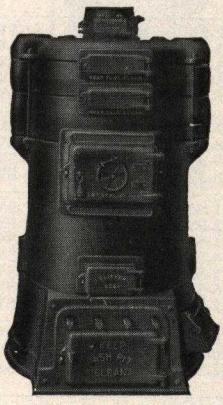
Ratings—Steam

Boiler Number	Catalog Rating Square Feet		E. D. R. Rating Square Feet		Diameter of Grate Inches	Grate Area Sq. Ft.	Supply and Return Tappings Inches	Water Line Inches	Height Inches
	Coal	*Oil	Coal	*Oil					
S-1804	330	.....	200	.....	18	1.77	2–2½	42	48
S-1805	360	400	250	310	18	1.77	2–2½	47	53
S-1806	390	430	300	375	18	1.77	2–2½	52	58
S-2004	440	.....	250	.....	20	2.18	2–3	43	49
S-2005	490	540	300	375	20	2.18	2–3	48	54
S-2006	530	590	350	440	20	2.18	2–3	53	59
S-2304	600	.....	400	.....	23	2.88	2–3	45	52
S-2305	675	750	450	560	23	2.88	2–3	50	57
S-2306	725	800	500	625	23	2.88	2–3	55	62
S-2604	775	.....	550	.....	26	3.69	2–3½	46	53
S-2605	875	970	600	750	26	3.69	2–3½	51	58
S-2606	950	1050	650	810	26	3.69	2–3½	56	63
S-2904	1125	.....	700	.....	29	4.58	2–4	48	54
S-2905	1250	1380	760	950	29	4.58	2–4	53	59
S-2906	1350	1480	820	1025	29	4.58	2–4	58	64
S-31-3	1350	.....	830	.....	31	5.25	2–4	49	56
S-31-5	1475	1620	920	1150	31	5.25	2–4	55	62
S-31-6	1550	1700	1000	1250	31	5.25	2–4	61	68

Ratings—Water

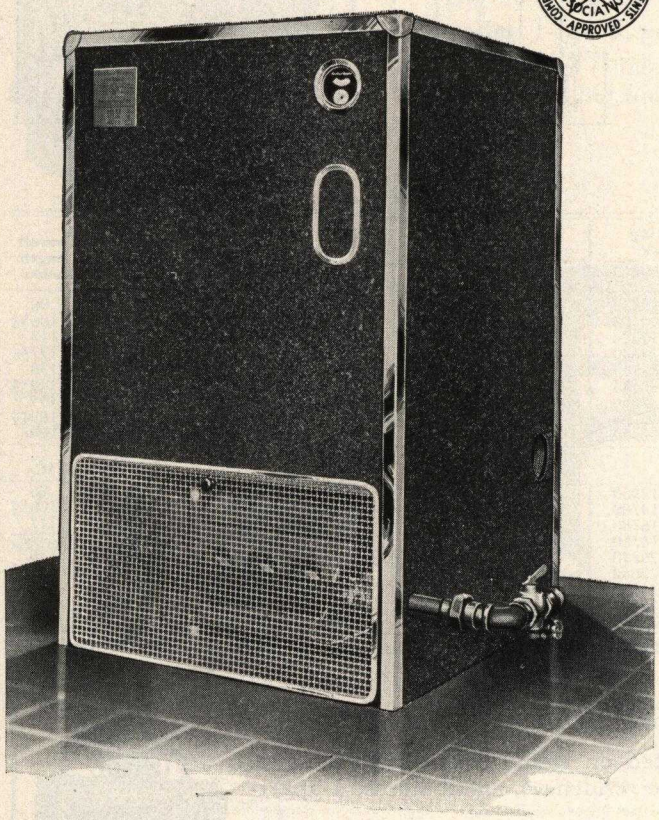
W-1804	550	.....	320	.....	18	1.77	2–2½	.....	42
W-1805	600	660	400	500	18	1.77	2–2½	.....	47
W-1806	650	710	480	600	18	1.77	2–2½	.....	52
W-2004	725	.....	400	.....	20	2.18	2–3	.....	43
W-2005	810	890	480	600	20	2.18	2–3	.....	48
W-2006	875	960	560	700	20	2.18	2–3	.....	53
W-2304	990	.....	640	.....	23	2.88	2–3	.....	45
W-2305	1115	1230	720	900	23	2.88	2–3	.....	50
W-2306	1200	1320	800	1000	23	2.88	2–3	.....	55
W-2604	1280	.....	880	.....	26	3.69	2–3½	.....	45
W-2605	1445	1590	960	1200	26	3.69	2–3½	.....	50
W-2606	1570	1730	1040	1300	26	3.69	2–3½	.....	55
W-2904	1860	.....	1120	.....	29	4.58	2–4	.....	47
W-2905	2075	2280	1220	1520	29	4.58	2–4	.....	52
W-2906	2230	2450	1310	1640	29	4.58	2–4	.....	57
W-31-4	2230	.....	1330	.....	31	5.25	2–4	.....	48
W-31-5	2450	2695	1470	1840	31	5.25	2–4	.....	54
W-31-6	2560	2820	1600	2000	31	5.25	2–4	.....	60

*When Boilers are wanted for Oil Burning, use Boiler Number as shown, followed by the word "Oil." Example: "S-1804-Oil."



Five Section Water Boiler

Burnham Simplex Gas Boilers

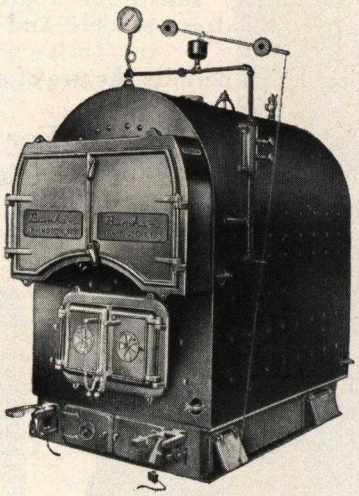


Burnham Simplex boilers are constructed in accordance with the A. S. M. E. Code and have been tested and approved under the recent and most rigid requirements of the American Gas Association Testing Laboratory.

Ratings

Steam Boiler No.	A.G.A. Steam Rating Sq. Ft.	Supplies Sq. Ft. Direct C. I. Radiation	Water Boiler No.	A.G.A. Water Rating Sq. Ft.	Supplies Sq. Ft. Direct C. I. Radiation	Output B.T.U.	Boiler H. P.	Gas Consumption Cu. Ft. per Hour 500 B.T.U. Gas	Gas Consumption Cu. Ft. per Hour 1000 B.T.U. Gas
2-SS	290	185	2-SW	470	300	70,000	2.1	175	87
3-SS	550	355	3-SW	880	575	132,000	3.9	330	165
4-SS	770	500	4-SW	1230	815	184,000	5.5	460	230
5-SS	1000	660	5-SW	1600	1085	240,000	7.2	600	300
6-SS	1250	830	6-SW	2000	1380	300,000	9.0	750	375
7-SS	1500	1010	7-SW	2400	1670	360,000	10.7	900	450
8-SS	1750	1190	8-SW	2800	1960	420,000	12.5	1050	525
9-SS	2020	1390	9-SW	3230	2280	484,000	14.5	1210	605
10-SS	2250	1560	10-SW	3600	2555	540,000	16.1	1350	675
11-SS	2500	1740	11-SW	4000	2860	600,000	17.9	1500	750
12-SS	2750	1885	12-SW	4400	3145	660,000	19.7	1650	825
13-SS	3000	2110	13-SW	4800	3430	720,000	21.5	1800	900
14-SS	3250	2290	14-SW	5200	3715	780,000	23.3	1950	975
15-SS	3520	2490	15-SW	5630	4020	844,000	25.2	2110	1055
16-SS	3750	2665	16-SW	6000	4290	900,000	26.9	2250	1125
17-SS	4000	2860	17-SW	6400	4575	960,000	28.7	2400	1200
18-SS	4250	3040	18-SW	6800	4860	1,020,000	30.4	2550	1275
20-SS	4770	3405	20-SW	7630	5450	1,144,000	34.1	2860	1430
22-SS	5250	3750	22-SW	8400	6000	1,260,000	37.6	3150	1575

Burnham Steel Welded Boilers



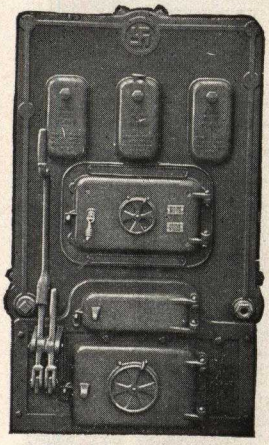
Can be furnished for Triple Duty (Heating—Hot Water Supply—Incineration) when so ordered. For Coal—Oil—Gas—Stoker—Smokeless.

Ratings

Boiler No.	S. H. B. I. Steam Rating Coal	S. H. B. I. Steam Rating Oil	S. H. B. I. Water Rating Coal	S. H. B. I. Water Rating Oil	Heating Surface Sq. Ft.	Grate Area Sq. Ft.	Water Line Inches
28-39	994	1207	1590	1931	71	4.5	53
28-48	1218	1479	1949	2366	87	6.0	53
28-57	1456	1768	2330	2829	104	7.3	53
34-57	1876	2278	3002	3645	134	8.2	56
34-69	2170	2635	3472	4216	155	8.7	56
34-81	2422	2941	3875	4706	173	9.5	56
39-75	2912	3536	4659	5658	208	10.2	57
39-87	3374	4097	5398	6555	241	11.1	57
39-96	3738	4539	5980	7262	267	11.7	57
42-70	4340	5270	6944	8432	310	12.5	69
42-77	4788	5814	7661	9302	342	14.0	69
42-88	5488	6664	8780	10662	392	15.5	69
48-72	6328	7684	10125	12294	452	18.1	82
48-78	6888	8364	11021	13382	492	19.6	82
48-83	7476	9078	11961	14525	534	19.8	82
54-81	8134	9877	13014	15803	581	20.6	84
54-92	9296	11288	14873	18061	664	22.6	84
54-100	10136	12308	16217	19692	724	25.0	84
60-86	11802	14331	18883	22929	843	25.8	95
60-92	12670	15385	20272	24616	905	26.5	95
60-102	14084	17102	22534	27363	1006	27.5	95
66-105	15498	18819	24796	30110	1107	28.8	96
66-115	17024	20672	27238	33075	1216	30.3	96
72-116	19180	23290	30688	37264	1370	34.4	97
72-130	21672	26316	34675	42105	1548	36.0	97
78-127	22708	27574	36333	44118	1622	36.5	99
78-144	25802	31331	41283	50130	1843	39.9	99
84-117	30184	36652	48294	58640	2156	41.3	118
84-132	34384	41752	55014	66803	2456	43.9	118
84-144	37744	45832	60390	73331	2696	46.6	118

Note—First set of numbers in Boiler No. denotes width of Boiler. Second set of numbers in Boiler No. denotes length of Boiler.

Burnham Hot Water Supply Boilers



High Pressure

Tested to 200 Pounds

Guaranteed for 80 Pounds

These boilers have a well established reputation for economical heating of water supply tanks. They are particularly adapted for furnishing hot water to Apartment Houses, Office Buildings, Hospitals, Stores, Theatres, Restaurants, and similar buildings.

Ratings—Coal Fired

Size	Gals. Rating 100° Rise 3 Hrs.	Suggested Combinations: Size Tank In.	Suggested Combinations: Size Tank Ft.	Suggested Combinations: No. of Families	No. of Sections	Grate Area Sq. Feet	Size of Grate Inches	Supply and Return Tappings Inches	Length of Base Inches	Overall Length Inches
17-Inch Series										
H-17-5	500	42	x7	15	4	1.7	17½x14	2–3	22	40½
H-17-6	650	42	x9	19	5	2.2	17½x18	2–3	26	44½
H-17-7	800	42	x10	25	6	2.7	17½x27	2–3	30	48½
H-17-8	950	42	x12	31	7	3.2	17½x26	2–3	34	52½
H-17-9	1100	42	x14	37	8	3.7	17½x30	2–3	38	56½
21-Inch Series										
H-21-4	900	42	x12	31	4	2.55	21x17½	2–3	21	30
H-21-5	1100	42	x14	37	5	3.28	21x22½	2–3	26	35
H-21-6	1300	48	x14	42	6	4.01	21x27½	2–3	31	40
H-21-7	1500	48	x16	47	7	4.74	21x32½	2–3	36	45
H-21-8	1700	54	x14	52	8	5.47	21x37½	2–3	41	50
H-21-9	1900	54	x16	57	9	6.20	21x42½	2–3	46	55
H-21-10	2100	60	x14	62	10	6.92	21x47½	2–3	51	60
27-Inch Series										
H-27-7	2300	60	x14	80	7	6.98	27x37¼	2–4	43	53½
H-27-8	2600	60	x16	95	8	8.11	27x43¼	2–4	49	59½
H-27-9	2900	60	x20	110	9	9.23	27x49¼	2–4	55	65½
H-27-10	3200	60	x22	130	10	10.36	27x55¼	2–4	61	71½
H-27-11	3500	60	x24	135	11	11.48	27x61¼	2–4	67	77½
H-27-12	3800	60	x26	160	12	12.61	27x67¼	2–4	73	83½

Ratings—Burning

When boilers are used with Oil Burning Equipment, Gallons Rating may be increased approximately 20%.

Round Junior Boiler

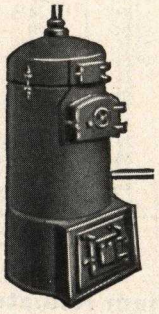
For Hot Water Heating

A high grade, efficient and economical tank heater.

Ratings

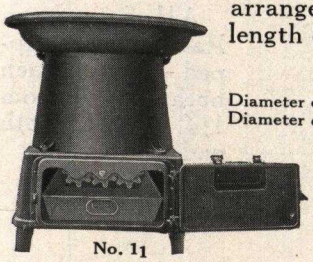
Number	*110	*112	*114	20	201
Diameter Grate, Inches	10	12	14	20	20
Rating, sq. ft	125	200	300	450	550
Tank Capacity, gallons	175	275	375	550	700
Total Diameter, inches	16	18	20	26	26
Total Height, inches	33	36⅝	39	40¾	45¾
Size Supply, inches	2	2	2½	3	3
Size Return, inches	2	2	2½	3	3
Diam. Smoke Pipe, in.	5	5	7	7	7

*Brass water sections can be furnished in sizes 110 and 112—114. Special prices on application.



No. 11 Laundry Stoves

Equipped with Triangular Revolving Grates. The 20-inch top has a triple lid arrangement that opens up the full length of a long wash boiler.



No. 11

Dimensions

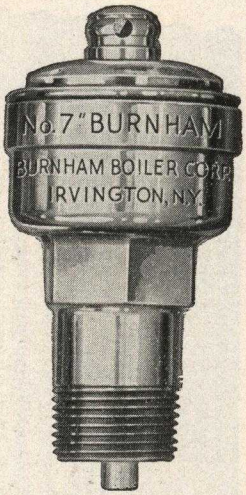
Diameter of Top, inches.....20
Diameter of Lids—one, inches.....9
Two-half of, inches.....9
Diameter of Grate, inches.....11
Capacity, gallons.....60 to 100
Tappings.....1-inch Flow and Return
Height, inches.....23
Depth of Fire Pot, inches.....11½
Pipe Collar, inches.....5

Burnham Air Vacuum Valves

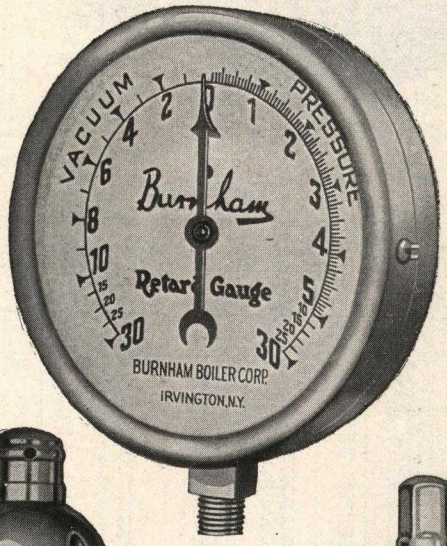
Save Fuel



No. 1 and 2
No. 1—Non-Vacuum.
No. 2—Vacuum
⅛-inch side outlet



No. 7
Non-Vacuum.
¾-inch bottom outlet.



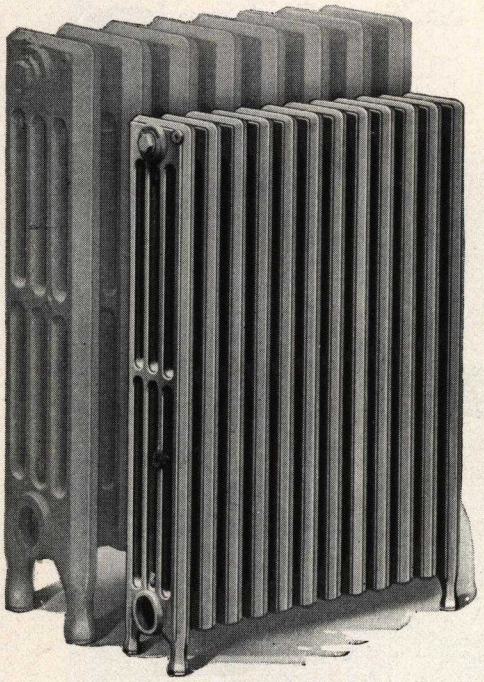
Burnham Retard Gauge
4½-inch dial, ¼-inch bottom connection.



No. 5 and 6
No. 5—Non-Vacuum.
No. 6—Vacuum.
⅜-inch bottom outlet.



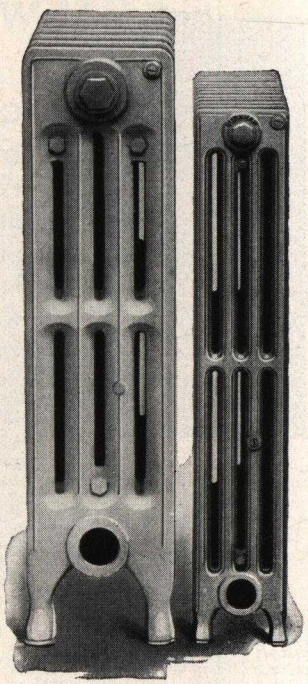
No. 3 and 4
No. 3—Non-Vacuum.
No. 4—Vacuum.
¼-inch bottom outlet.



The Burnham Radiator

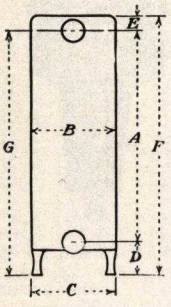
The New Burnham Type Radiator is the only one which is designed to be used successfully either exposed or concealed with Steam, Vapor or Hot Water.

These two views show an actual comparison between the conventional Four-Tube Radiator and the new "Burnham" Four-Tube Radiator. Although both radiators pictured are of the same capacity, you will notice that the new "Burnham" Radiator is **narrower, lower** and **shorter.**



Ratings

Three Tube					Four Tube				
Number of Sections	Length 1½ Inches Per Section	19-inch Height 1.1 Sq. Ft. Per Section	22-inch Height 1.3 Sq. Ft. Per Section	25-inch Height 1.5 Sq. Ft. Per Section	Number of Sections	Length 1½ Inches Per Section	19-inch Height 1.4 Sq. Ft. Per Section	22-inch Height 1.6 Sq. Ft. Per Section	25-inch Height 1.8 Sq. Ft. Per Section
2	3	2.2	2.6	3	2	3	2.8	3.2	3.6
3	4½	3.3	3.9	4.5	3	4½	4.2	4.8	5.4
4	6	4.4	5.2	6	4	6	5.6	6.4	7.2
5	7½	5.5	6.5	7.5	5	7½	7.0	8.0	9.0
6	9	6.6	7.8	9	6	9	8.4	9.6	10.8
7	10½	7.7	9.1	10.5	7	10½	9.8	11.2	12.6
8	12	8.8	10.4	12	8	12	11.2	12.8	14.4
9	13½	9.9	11.7	13.5	9	13½	12.6	14.4	16.2
10	15	11.0	13.0	15	10	15	14.0	16.0	18.0
11	16½	12.1	14.3	16.5	11	16½	15.4	17.6	19.8
12	18	13.2	15.6	18	12	18	16.8	19.2	21.6
13	19½	14.3	16.9	19.5	13	19½	18.2	20.8	23.4
14	21	15.4	18.2	21	14	21	19.6	22.4	25.2
15	22½	16.5	19.5	22.5	15	22½	21.0	24.0	27.0
16	24	17.6	20.8	24	16	24	22.4	25.6	28.8
17	25½	18.7	22.1	25.5	17	25½	23.8	27.2	30.6
18	27	19.8	23.4	27	18	27	25.2	28.8	32.4
19	28½	20.9	24.7	28.5	19	28½	26.6	30.4	34.2
20	30	22.0	26.0	30	20	30	28.0	32.0	36.0
21	31½	23.1	27.3	31.5	21	31½	29.4	33.6	37.8
22	33	24.2	28.6	33	22	33	30.8	35.2	39.6
23	34½	25.3	29.9	34.5	23	34½	32.2	36.8	41.4
24	36	26.4	31.2	36	24	36	33.6	38.4	43.2
25	37½	27.5	32.5	37.5	25	37½	35.0	40.0	45.0
26	39	28.6	33.8	39	26	39	36.4	41.6	46.8
27	40½	29.7	35.1	40.5	27	40½	37.8	43.2	48.6
28	42	30.8	36.4	42	28	42	39.2	44.8	50.4
29	43½	31.9	37.7	43.5	29	43½	40.6	46.4	52.2
30	45	33.0	39.0	45	30	45	42.0	48.0	54.0

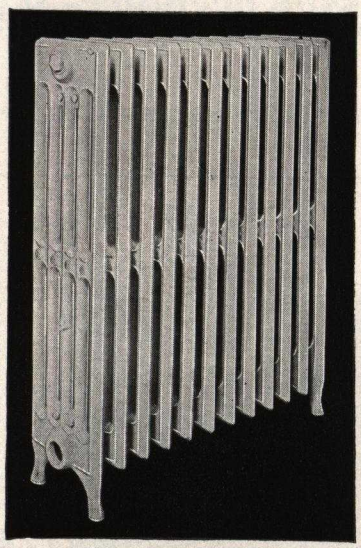


Dimensions Burnham Radiator

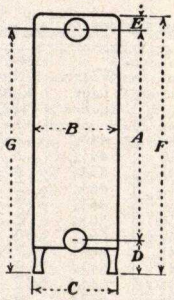
Size	A	B & C	D	E	F	G
25–4	21 7/16	4 7/16	2½	1 1/16	25	23 15/16
22–4	18 7/16	4 7/16	2½	1 1/16	22	20 15/16
19–4	15 7/16	4 7/16	2½	1 1/16	19	17 15/16
25–3	21 7/16	3¼	2½	1 1/16	25	23 15/16
22–3	18 7/16	3¼	2½	1 1/16	22	20 15/16
19–3	15 7/16	3¼	2½	1 1/16	19	17 15/16

All Burnham Radiators are tapped — Top 1-inch both ends; Bottom 1¼ inches both ends.

Fero Radiators



Fero Five-Tube Radiator



Ratings

Number of Sections	* Length 2½ Inches per Section	Square Feet: 38 In.	32 In.	26 In.	23 In.	20 In.	38 In.	32 In.	26 In.	23 In.	20 In.
		Three Tube Square Feet per Section					Four Tube Square Feet per Section				
		3½	3	2⅔	2	1¾	4½	3½	2¾	2½	2¼
2	5	7	6	4⅔	4	3½	8½	7	5½	5	4½
3	7½	10½	9	7	6	5¼	12¾	10½	8¼	7½	6¾
4	10	14	12	9⅓	8	7	17	14	11	10	9
5	12½	17½	15	11⅔	10	8¾	21¼	17½	13¾	12½	11¼
6	15	21	18	14	12	10½	25½	21	16½	15	13½
7	17½	24½	21	16⅓	14	12¼	29¾	24½	19¼	17½	15¾
8	20	28	24	18⅔	16	14	34	28	22	20	18
9	22½	31½	27	21	18	15¾	38¼	31½	24¾	22½	20¼
10	25	35	30	23⅓	20	17½	42½	35	27½	25	22½
11	27½	38½	33	25⅔	22	19¼	46¾	38½	30¼	27½	24¾
12	30	42	36	28	24	21	51	42	33	30	27
13	32½	45½	39	30⅓	26	22¾	55¼	45½	35¾	32½	29¼
14	35	49	42	32⅔	28	24½	59½	49	38½	35	31½
15	37½	52½	45	35	30	26¼	63¾	52½	41¼	37½	33¾
16	40	56	48	37⅓	32	28	68	56	44	40	36
17	42½	59½	51	39⅔	34	29¾	72¼	59½	46¾	42½	38¼
18	45	63	54	42	36	31½	76½	63	49½	45	40½
19	47½	66½	57	44⅓	38	33¼	80¾	66½	52¼	47½	42¾
20	50	70	60	46⅔	40	35	85	70	55	50	45
21	52½	73½	63	49	42	36¾	89¼	73½	57¾	52½	47¼
22	55	77	66	51⅓	44	38½	93½	77	60½	55	49½
23	57½	80½	69	53⅔	46	40¼	97¾	80½	63¼	57½	51¾
24	60	84	72	56	48	42	102	84	66	60	54
25	62½	87½	75	58⅓	50	43¾	106¼	87½	68¾	62½	56¼
26	65	91	78	60⅔	52	45½	110½	91	71½	65	58½
		Five Tube Square Feet per Section					Six Tube Square Feet per Section				
		5	4⅓	3½	3	2⅔	6	5	4	3½	3
2	5	10	8⅔	7	6	5⅓	12	10	8	7	6
3	7½	15	13	10½	9	8	18	15	12	10½	9
4	10	20	17⅓	14	12	10⅔	24	20	16	14	12
5	12½	25	21⅔	17½	15	13⅓	30	25	20	17½	15
6	15	30	26	21	18	16	36	30	24	21	18
7	17½	35	30⅓	24½	21	18⅔	42	35	28	24½	21
8	20	40	34⅔	28	24	21⅓	48	40	32	28	24
9	22½	45	39	31½	27	24	54	45	36	31½	27
10	25	50	43⅓	35	30	26⅔	60	50	40	35	30
11	27½	55	47⅔	38½	33	29⅓	66	55	44	38½	33
12	30	60	52	42	36	32	72	60	48	42	36
13	32½	65	56⅓	45½	39	34⅔	78	65	52	45½	39
14	35	70	60⅔	49	42	37⅓	84	70	56	49	42
15	37½	75	65	52½	45	40	90	75	60	52½	45
16	40	80	69⅓	56	48	42⅔	96	80	64	56	48
17	42½	85	73⅔	59½	51	45⅓	102	85	68	59½	51
18	45	90	78	63	54	48	108	90	72	63	54
19	47½	95	82⅓	66½	57	50⅔	114	95	76	66½	57
20	50	100	86⅔	70	60	53⅓	120	100	80	70	60
21	52½	105	91	73½	63	56	126	105	84	73½	63
22	55	110	95⅓	77	66	58⅔	132	110	88	77	66
23	57½	115	99⅔	80½	69	61⅓	138	115	92	80½	69
24	60	120	104	84	72	64	144	120	96	84	72
25	62½	125	108⅓	87½	75	66⅔	150	125	100	87½	75
26	65	130	112⅔	91	78	69⅓	156	130	104	91	78

Dimensions of Fero Radiators

Size Ins.	Tube	A	B	C	D	E	F	G
38	3	31 11/16	5⅜	5¼	4½	147/64	37 59/64	36 3/16
31	3	24 11/16	5⅛	5¼	4½	147/64	30 59/64	29 3/16
27	3	20 11/16	5⅛	5¼	4½	147/64	26 59/64	25 3/16
23	3	16 11/16	5⅛	5¼	4½	147/64	22 59/64	21 3/16
20	3	13 11/16	5⅛	5¼	4½	147/64	19 59/64	18 3/16
38	4	31 11/16	6½	6⅝	4½	1 13/16	38	36 3/16
32	4	25 11/16	6½	6⅝	4½	1 13/16	32	30 3/16
26	4	19 11/16	6½	6⅝	4½	1 13/16	26	24 3/16
23	4	16 11/16	6½	6⅝	4½	1 13/16	23	21 3/16
20	4	13 11/16	6½	6⅝	4½	1 13/16	20	18 3/16
38	5	31 11/16	8½	8½	4½	1 13/16	38	36 3/16
32	5	25 11/16	8½	8½	4½	1 13/16	32	30 3/16
26	5	19 11/16	8½	8½	4½	1 13/16	26	24 3/16
23	5	16 11/16	8½	8½	4½	1 13/16	23	21 3/16
20	5	13 11/16	8½	8½	4½	1 13/16	20	18 3/16
38	6	31 11/16	10 5/16	10 5/16	4½	1 13/16	38	36 3/16
32	6	25 11/16	10 5/16	10 5/16	4½	1 13/16	32	30 3/16
26	6	19 11/16	10 5/16	10 5/16	4½	1 13/16	26	24 3/16
23	6	16 11/16	10 5/16	10 5/16	4½	1 13/16	23	21 3/16
20	6	13 11/16	10 5/16	10 5/16	4½	1 13/16	20	18 3/16
20	7	15 3/16	12⅛	12⅛	3	1 13/16	20	18 3/16
17	7	12 3/16	12⅛	12⅛	3	1 13/16	17	15 3/16
14	7	9 3/16	12⅛	12⅛	3	1 13/16	14	12 3/16

All dimensions given in inches.

Seven Tube Window Radiators

No. of Sects.	Square Feet: *Length 2½-In. per Section	20-In. Height 3⅔ Sq. Ft. per Section	17-In. Height 3¼ Sq. Ft. per Section	14-In. Height 2⅔ Sq. Ft. per Section	No. of Sects.	Square Feet: *Length 2½-In. per Section	20-In. Height 3⅔ Sq. Ft. per Section	17-In. Height 3¼ Sq. Ft. per Section	14-In. Height 2⅔ Sq. Ft. per Section
2	5	7⅓	6½	5⅓	15	37½	55	48¾	40
3	7½	11	9¾	8	16	40	58⅔	52	42⅔
4	10	14⅔	13	10⅔	17	42½	62⅓	55¼	45⅓
5	12½	18⅓	16¼	13⅓	18	45	66	58½	48
6	15	22	19½	16	19	47½	69⅔	61¾	50⅔
7	17½	25⅔	22¾	18⅔	20	50	73⅓	65	53⅓
8	20	29⅓	26	21⅓	21	52½	77	68¼	56
9	22½	33	29¼	24	22	55	80⅔	71½	58⅔
10	25	36⅔	32½	26⅔	23	57½	84⅓	74¾	61⅓
11	27½	40⅓	35¾	29⅓	24	60	88	78	64
12	30	44	39	32	25	62½	91⅔	81¼	66⅔
13	32½	47⅔	42¼	34⅔	26	65	95⅓	84½	69⅓
14	35	51⅓	45½	37⅓					

All Fero Radiators are tapped 1½-inch top and bottom both ends.

*Add ½-inch to length for each bushing.

Fero Radiators can be furnished legless or with legs to measure 6 inches from floor to center of bottom tapping when so ordered.

Fero Window Radiators can be furnished legless or with legs to measure 4½ inches or 6 inches from floor to center of bottom tapping when so ordered.

COLUMBIA RADIATOR COMPANY — McKEESPORT, PA.

Main Office and Factory—3400 Walnut Street

Branch Offices

Philadelphia, Pa., York and American Sts.

Chicago, Ill., 39th and Wallace Sts.
Newark, N. J., 429 Adams St.

Boston, Mass., 450 Rutherford Ave., Charlestown.

COLUMBIA

Boilers and Radiators

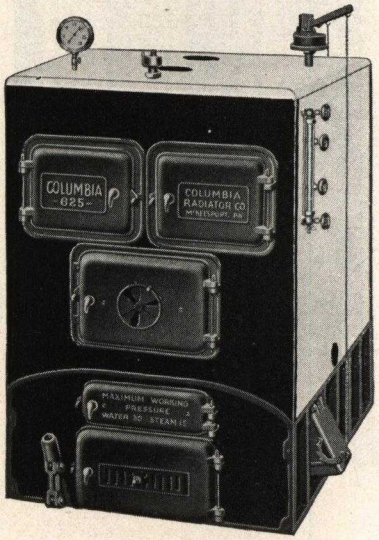


Columbia Square Boiler
17-Inch Series

Columbia Square Boilers having large ample flues and unusually deep fire pot are ideal heaters for the home. It holds fire for long intervals without attention and produces heat quickly. Long flue travel, more than twice the depth of the boiler, and large heating surface insures rapid and efficient absorption of heat from the fuel. Black and red steel jackets gives the boiler a very pleasing appearance. Black enameled doors are specially treated to withstand excessive heat. One-inch asbestos insulation minimizes heat losses.

Columbia Sectional Boilers (Unjacketed) deliver heat very rapidly and meet the demand for a house heating boiler in which there is the performance of the larger type. Hard or soft coal, wood, coke, gas or oil can be burned efficiently. Additional sections can be added at any time up to the maximum capacity of the boiler.

Columbia Round Boilers have numerous features of merit, which contribute to its remarkable ease of operation and efficiency of performance. The firepot is unusually deep, providing ample combustion space above the fuel bed. The length of fire travel is long through staggered openings which insures maximum heat transfer and increased boiler efficiency.



Columbia Square Boiler
21-Inch and 25-Inch Series

Columbia Square Boilers—17-Inch Series—Jacketed

Boiler Number Steam or Water	Ratings D.C.I.R. Loads Square Feet: Steam	Ratings D.C.I.R. Loads Square Feet: Water	Grate Area	Base Dimensions Inches	Hard Coal Fuel Capacity Pounds	Size Supply Tappings Inches	Chimney Height Feet	Min. Flue Size Inches
417	200	330	1.5	24½x18	145	2–2½	30	9x 9
517	290	480	2.0	24½x22	195	2–2½	30	9x 9
617	380	630	2.5	24½x26	245	2–2½	30	9x 9
717	470	780	3.0	24½x31	295	2–2½	35	9x13
*817	560	930	3.5	24½x35	350	3–2½	35	9x13
*917	650	1080	4.0	24½x40	395	3–2½	35	13x13

Columbia Sectional Boilers—Unjacketed

521	600	975	4.01	24x30	.....	2–3	30	9x13
621	700	1175	4.92	24x36	.....	2–3	35	9x13
721	800	1350	5.83	24x42	.....	3–3	35	13x13
525	700	1150	5.55	28x35	.....	2–4	35	9x13
625	875	1400	6.74	28x42	.....	2–4	35	13x13
725	1050	1700	8.00	28x49	.....	3–4	40	13x13
825	1200	2000	9.22	28x56	.....	3–4	40	13x13



Columbia Round Boiler

*8 and 9 section boilers have one additional return tapping on right hand side. Water line 46-inch. Flow tapping 56-inch. Smoke pipe 9-inch.

Sectional Boiler water line 21-45-inch,25-48-inch.

Columbia Round Boilers—Unjacketed

Boiler Number	Ratings D. C. I. R. Loads Square Feet: Steam	Ratings D. C. I. R. Loads Square Feet: Water	Grate Area	Water Line Inches	No. and Size Outlets Inches	Size Smoke Outlets Inches
S-18-4	175	285	1.58	44¾	2–2½	7
S-18-5	195	320	1.58	49¼	2–2½	7
S-20-4	275	455	1.97	43¾	2–2½	7
S-20-5	300	495	1.97	48¼	2–2½	7
S-23-4	375	620	2.64	46¼	2–3	8
S-23-5	410	675	2.64	50¾	2–3	8
S-23-6	445	730	2.64	55¼	2–3	8
S-26-4	475	785	3.41	46¼	2–3	9
S-26-5	525	865	3.41	51¼	2–3	9
S-26-6	575	945	3.41	56¼	2–3	9
S-29-4	600	990	4.23	46¼	2–3	10
S-29-5	675	1115	4.23	51¼	2–3	10
S-29-6	725	1195	4.23	56¼	2–3	10

Columbia Square Boilers—Jacketed

Boiler Number	Ratings D.C.I.R. Loads Square Feet: Steam	Ratings D.C.I.R. Loads Square Feet: Water	Grate Area Sq. Ft.	Foundation Inches	Tappings Inches: F	Tappings Inches: R	Chimney: Area Inches	Chimney: Height Feet
S or W-621-J	700	1175	4.92	32x36	2–3		13x13	35
S or W-525-J	700	1150	5.55	37x38	2–4	2–3	9x13	40
S or W-625-J	875	1400	6.74	37x42	2–4	2–3	13x13	35
S or W-725-J	1050	1700	8.00	37x49	3–4	3–3	13x13	40
S or W-825-J	1200	2000	9.22	37x56	3–4	3–3	13x13	40

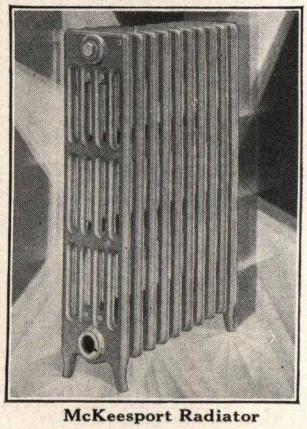
McKeesport Radiation

Tubes	Width of Section Inches	Feet per Section: 36"	30"	26"	23"	20"	16½"	13½"
3	5	3½	3	2⅛	2	1¾	.....	.....
4	6⅝	4¼	3½	2¾	2½	2¼	.....	.....
5	8⅜	5	4⅓	3½	3	2⅔	.....	.....
6	9¾	6	5	4	3½	3	.....	.....
7	12	7	6	5	4¼	3⅔	3	2½

1 Column Wall

Nominal Height, Inches	20	26	32	38
Feet per Section	1½	2	2½	3

Width of Section, 4 inches.



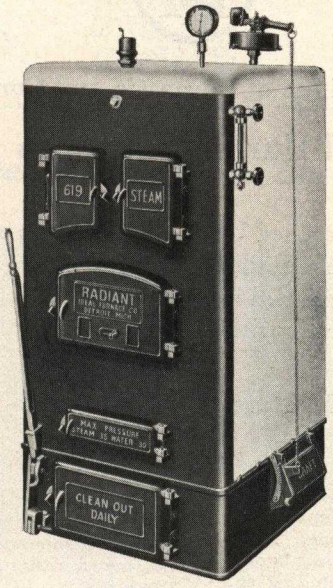
McKeesport Radiator

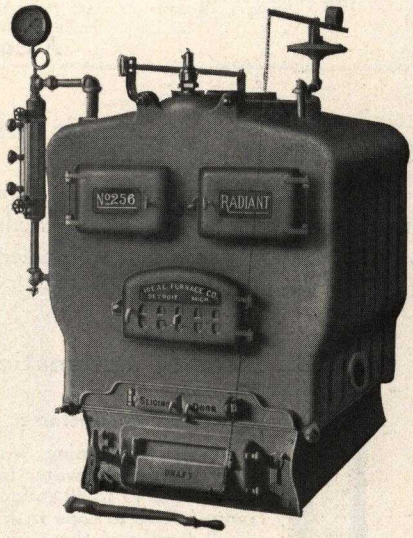
THE IDEAL FURNACE COMPANY DETROIT, MICH.

Main Office 2995 East Grand Boulevard

Radiant Boilers







Radiant Round Boilers

No.	Recommended Load Sq. Ft. E. D. R. Steam	Recommended Load Sq. Ft. E. D. R. Water	Grate Area Sq. Ft.
1184	275	450	1.77
1185	325	525	1.77
1204	375	610	2.18
1205	425	690	2.18
1224	450	730	2.64
1225	500	810	2.64
1254	600	965	3.41
1255	650	1035	3.41
1284	750	1200	4.27
1285	800	1290	4.27

Above furnished jacketed if desired.



Tank Heater

Radiant Jacketed Boilers

No.	Recommended Load Sq. Ft. E. D. R. Steam	Recommended Load Sq. Ft. E. D. R. Water	Grate Area Sq. Ft.
417	200	330	1.5
517	290	480	2.0
617	380	630	2.5
717	470	780	3.0
817	560	930	3.5
917	650	1080	4.0
419	300	480	1.65
519	400	640	2.18
619	500	800	2.74
719	600	960	3.27
819	700	1120	3.83
919	800	1280	4.35
1019	900	1440	5.00
1119	1000	1600	5.55
530	1400	2300	5.38
630	1600	2600	6.70
730	1850	3000	8.02
830	2100	3400	9.34
930	2350	3800	10.66
1030	2600	4200	11.98
1130	2850	4600	13.30
1230	3100	5000	14.64

Above furnished unjacketed if desired.

Radiant Tank Heaters

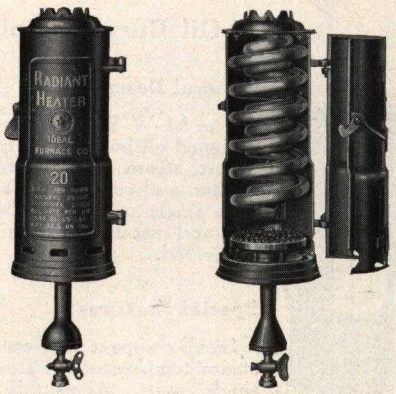
No.	Dia. Grate Inches	Height Inches	Actual Tank Capacity
40	10	19	40
45	10	20	45
52	10	20	52
66	10	21	66
85	10	27½	85
125	12	29	150
145	14	36	300
175	17	42	500

Larger sizes all Heaters on Request.

Radiant Sectional Boilers

Boiler No.	Recommended Load Sq. Ft. E. D. R. Steam	Recommended Load Sq. Ft. E. D. R. Water	Grate Area Sq. Ft.
456	2600	4200	11.08
457	3000	4800	13.02
458	3500	5600	15.03
459	4000	6400	17.36
4510	4500	7200	19.52
4511	5000	8000	21.63
4512	5500	8800	23.75
4513	6000	9600	25.86
4514	6500	10400	28.50
4515	7000	11200	30.61

Radiant Gas Water Heaters



Number	Gallons Capacity	Height
20	30-40	18
20 G.U.(Gal. Unions)	30-40	18
20 B.U.(Brass Unions)	30-40	18
25	40-52	22
25 G.U.(Gal. Unions)	40-52	22
25 B.U.(Brass Unions)	40-52	22

MOTOR WHEEL CORPORATION (HEATER DIVISION) LANSING, MICH.

701-735 East Saginaw Street

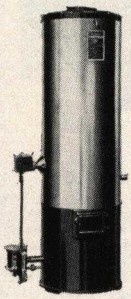
A Complete Line of Domestic and Commercial

Oil Burning Utilities

General Data—All Units:

All M-W Oil Burning Utilities are (1) Matched Units—the burners are designed especially for the boilers or heat chambers, or ranges in which they are installed at the factory. (2) Listed as Standard by the Underwriters' Laboratories and so labeled. (3) Designed for No. 1 furnace oil (36°–40° distillate). (4) Fully guaranteed by the manufacturer. (5) Fully automatic with the exception of the Cooking Ranges.

M-W Oil Burning Automatic Water Heaters



General Description :

M-W Oil Burning Water Heaters automatically supply hot water for all requirements at a low cost of 15 to 20 gallons for one cent. Models range in size to cope with the requirements of the small family of three up to and including commercial models for apartments, hotels, factories, etc.

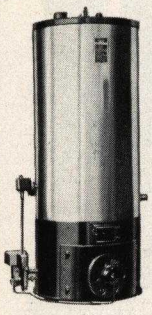
Construction:

The M-W burner is the famous Valjean carburetion type designed in several sizes for M-W Water Heaters, home heating plants and other M-W Oil Burning Utilities. It is matched with a correctly designed boiler and built into this boiler at the factory. Materials are of the best available for boiler manufacture and are amply guaranteed.

Economy:

The M-W Water Heater average operation is ⅓ that of manufactured gas, ⅕ of bottled gas cost, and 1/7 of electricity. It will operate at a cost approximately 50% less than hard coal and is entirely automatic.

M-W Oil Burning Boiler Unit



General Description:

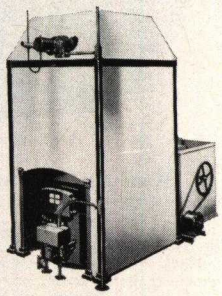
The M-W Boiler Unit combines an especially designed oil burner and boiler for economical, efficient, steam or hot water heating. The boiler, burner, and controls are assembled at the factory as a single unit. The M-W is built, shipped, sold and installed as a unit, making responsibility undivided.

Special Features:

Small compact size, economical operation, high steam temperatures. Boiler and burner built as single unit. Absolutely quiet. Underwriters' Laboratories and A. S. M. E. Label.

M-W Weather Control Unit

General Description:



An oil burner, heat chamber and controls are manufactured as a unit to furnish economical, efficient, forced air heating, ventilating and humidification to homes.

Special Features:

The M-W Weather Control Unit is furnished with a double casing which minimizes basement heat loss. Square casing units are attractively lacquered in red before shipment. Round units may be painted any color by owner. Full thermostatic control of burner and circulation blower is included on all units. Humidity control is automatic.

M-W Oil Burning Cooking Ranges

General Description:



The M-W Ranges are attractive, efficient, excellently constructed, and most economical. As true of all M-W Oil Burning Utilities, the M-W Ranges are of unit design. They incorporate a matched M-W oil burner in their construction. The domestic model is attractively finished in cream and green enamel. All models have a large three section cooking top.

Uses and Economy:

M-W Ranges are excellent replacements for coal and wood stoves in rural districts. They are ideal for resort sectors where gas and electricity are either high in cost or not available. Commercial models for restaurants, roadhouses, small hotels, etc., serve in isolated districts or replace gas. Besides superior cooking qualities, restaurant owners and country club managers are realizing fuel cost savings over manufactured gas upward of 60%.

Catalogues:

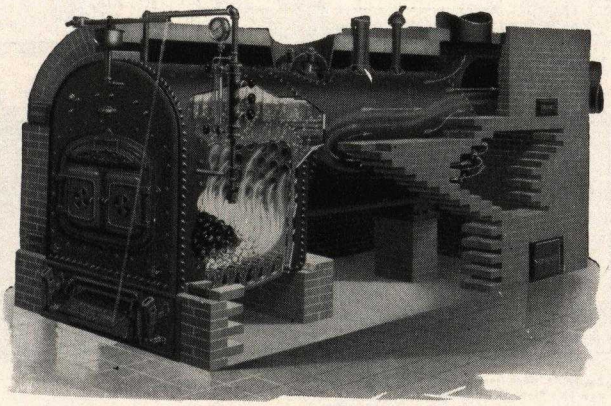
Write Motor Wheel Corporation, Heater Division, Lansing, Michigan, for catalogues and complete descriptive data covering the entire line of M-W Oil Burning Utilities. Ask about our Distributors' proposition and merchandising plan.

KEWANEE BOILER CORPORATION — KEWANEE, ILL.

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RICHMOND, VA.
ROANOKE, VA.

Kewanee Boiler Brick-Set for Heating



Kewanee Firebox Boilers

Built in accordance with A. S. M. E. Boiler Code. Working Pressure: Regular, 15 pounds; Special, to 150 pounds. This code is used only as a minimum limit. The equipment on all brick-set boilers includes Heavy rocking grates; fire door and frame, ash pit front with ash door and draft doors, necessary soot doors, and bearing plates with expansion rollers for supporting boiler shell on brick pier at rear. Firing tools include hoe, poker, slice bar and tube scraper. Rear flue clean-out doors are furnished with smokeless boilers, brick-set type. Special fire-brick tile to fit header, is furnished with all smokeless boilers. With portable type boilers we furnish all castings for erecting boilers, including cast iron ash pit base for smaller sizes.

Extra trimmings for steam boilers consist of water column with water gauge and three compression cocks, steam gauge with syphon and cock, pop safety valve, and automatic Arco draft regulator with lever, weights, pulleys and chains. No trimmings are furnished with water boilers.

Sufficient handholes are provided for cleaning purposes, and manholes are included in brick-set boilers 42 inches in diameter and larger, and in portable boilers 54 inches and larger.

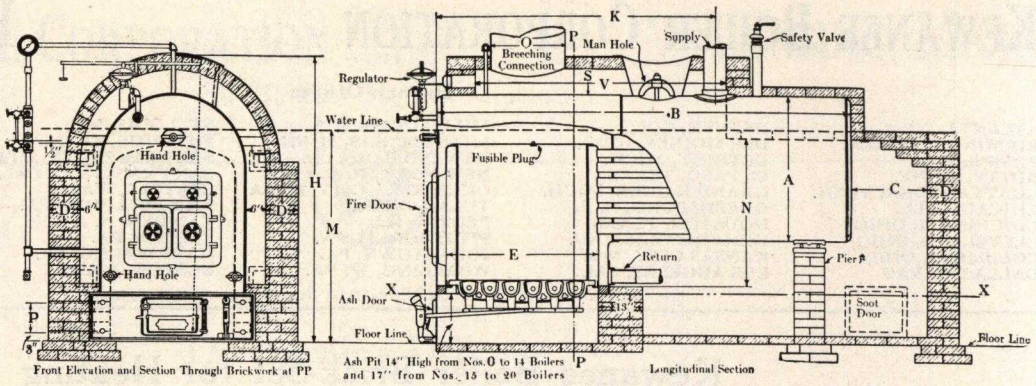
Kewanee rating is Total Radiation Load at boiler outlet expressed in equivalent surface of cast iron radiators emitting 240 units of heat or B. T. U.'s per square foot per hour for Steam, at 2 pounds pressure and 150 B. T. U.'s for Water at 180 degrees temperature. Provided the stack and breeching connections are in accordance with the manufacturer's specification, each Kewanee Boiler will carry all the radiation load listed as its capacity, and in addition will easily handle large overloads with long firing periods and with low stack temperatures.

Specifications

Number of Boiler	0	1	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	20
Capacity, Steam....Sq. Ft.	510	690	940	1240	1380	1830	2410	3340	4170	4300	5130	6070	7440	8770	10310	12080	12420	14670	16340	18610
Capacity, Water....Sq. Ft.	820	1100	1500	1980	2210	2930	3860	5340	6670	6880	8200	9710	11900	14030	16500	19330	19870	23500	26140	29800
Diameter Boiler....Inches	24	30	30	30	36	36	36	42	42	48	48	48	54	54	60	60	66	66	72	72
Length Boiler over-all....Ft. In.	6–10	6–5	7–6	8–6	7–6	9–0	10–6	10–0	11–6	10–6	12–0	13–6	13–11	16–5	15–6	18–0	16–0	18–0	16–0	18–0
Approximate Weight, Pounds....	1900	2400	2700	2900	3300	3700	4200	5400	6000	6700	7300	8000	10600	11900	14400	16000	17800	19100	21700	23500
Width of Fire-box....Inches	19	24	24	24	30	30	30	36	36	42	42	42	48	48	53	53	59	59	65	65
Length of Fire-box....Inches	26	26	32	38	32	38	44	44	50	44	50	56	56	62	62	68	62	68	68	74
Height of Fire-box....Inches	30	35	35	35	38	38	38	41	41	44	44	44	49	49	54	54	59	59	64	64
Heating Surface....Sq. Ft.	84	113	131	147	180	215	250	305	350	368	420	472	560	673	743	873	954	1080	1167	1329
Area of Grate....Sq. Ft.	3.5	4.4	5.4	6.4	6.8	8.0	9.3	11.1	12.6	12.9	14.7	16.5	18.8	20.8	22.9	25.1	25.5	28.0	30.8	33.5
Diameter of Breeching....Inches	10	12	14	16	16	18	18	20	22	22	24	24	28	28	32	32	32	32	36	36
Diameter of Stack....Inches	10	12	12	14	14	16	16	18	20	20	22	22	26	26	30	30	30	30	34	34
Minimum Height of Stack....Feet	35	40	40	40	40	40	45	45	45	45	50	50	50	50	55	55	60	60	60	60
Diam. of Breeching, 2 Boilers..Inches	16	18	20	22	22	24	24	28	32	32	32	34	36	36	40	40	40	42	44	46
Diam. of Stack, 2 Boilers....Inches	16	18	18	20	20	22	22	26	28	28	30	32	34	34	36	36	36	38	40	42
Min. Hgt. of Stack, 2 Boilers....Feet	40	45	45	45	45	45	45	50	50	50	50	50	55	60	60	70	70	70	70	70
Size of Steam Opening....Inches	3	4	4	5	5	6	6	6	6	6	6	8	8	8	8	8	8	8	8	8
Size of Return....Inches	2	2½	2½	3	3	3	3	4	4	4	4	5	5	5	5	5	6	6	6	6
Size of Safety Valve....Inches	1	1¼	1¼	1¼	1½	1½	2	2	2	2	2½	2½	2½	3	3	3½	3½	3½	4	4
Height of Water Line....Inches	47	52	52	52	55	55	55	58½	58½	61	61	61	66	66	75	75	80	80	85½	85½
Height from Floor to Top of Brick Work....Inches	64	70	70	70	77	77	77	83	83	90	90	90	96	96	108	108	114	114	120	120

Capacity for Oil, Gas or Stoker—Steam, 1440 to 26,600 sq. ft.; Water, 60% Greater than Steam.

Diagram at right illustrates Kewanee Boiler—Brick-set with Stack Connection at Front



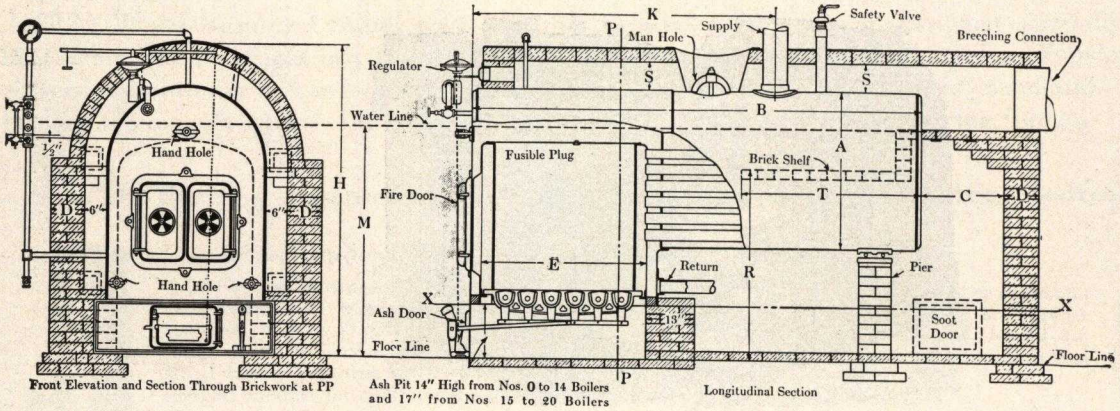
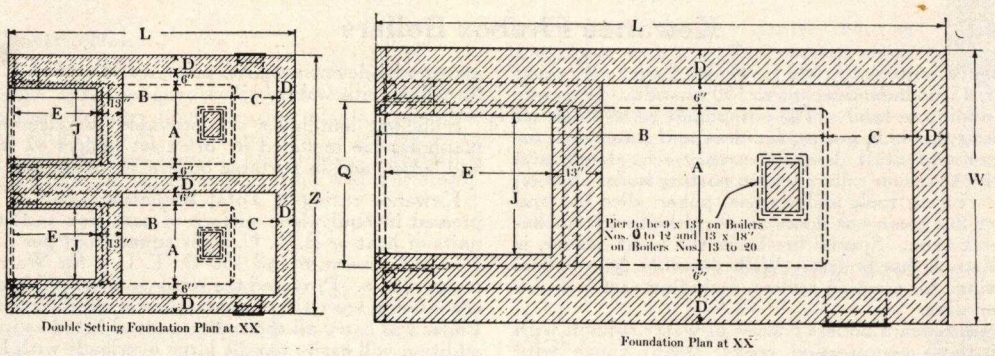


Diagram at left illustrates Kewanee Boiler—Brick-set with Stack Connection at Rear



Setting Measurements

Number of Boiler	0	1	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	20
A—Diameter of Boiler....Inches	24	30	30	30	36	36	36	42	42	48	48	48	54	54	60	60	66	66	72	72
B—Length of Boiler....Ft. In.	6–10	6–5	7–6	8–6	7–6	9–0	10–6	10–0	11–6	10–6	12–0	13–6	13–11	16–5	15–6	18–0	16–0	18–0	16–0	18–0
C—Rear Space....Inches	14	17	17	17	17	17	17	22	22	22	22	22	24	24	24	24	24	24	28	28
D—Thickness Wall....Inches	9	9	9	9	9	9	9	9	9	9	9	9	13	13	13	13	13	13	13	13
E—Length Grate....Inches	26	26	32	38	32	38	44	44	50	44	50	56	56	62	62	68	62	68	68	74
J—Width Ash Pit....Inches	19	25	25	25	31	31	31	37	37	43	43	43	49	49	54	54	60	60	66	66
H—Total Height....Inches	64	70	70	70	77	77	77	83	83	90	90	90	96	96	108	108	114	114	120	120
K—Location of Supply....Ft. In.	4–0	4–0	4–8	5–6	4–11	5–11	6–11	6–8	7–2	7–0	7–10	8–6	9–2	9–8	9–6	10–8	9–8	10–8	9–9	10–9
M—Height of Water-line....Inches	47	52	52	52	55	55	55	58½	58½	61	61	61	66	66	75	75	80	80	85½	85½
N—Height of Side Flue....Ft. In.	2–6	2–8	2–8	2–8	3–0	3–0	3–0	3–3	3–3	3–6	3–6	3–6	4–0	4–0	4–3	4–3	4–10	4–10	5–3	5–3
O—Diam. of Breeching Conn.Inches	10	12	14	16	16	18	18	20	22	22	24	24	28	28	32	32	32	32	36	36
R—Height Brick Shelf....Inches	41	44	44	44	47	47	47	50	50	53	53	53	56	56	63	63	66	66	69	69
S—Top Flue Space....Inches	6	6	6	6	7	7	7	7	7	8	8	8	8	8	10	10	10	10	10	10
T—Length Brick Shelf....Inches	36	30	38	44	36	42	54	48	60	54	66	80	84	102	90	108	90	108	84	102
V—Length of Arch....Ft. In.	3–2	3–2	3–10	4–9	4–1	5–1	6–1	6–3	6–9	6–3	7–3	7–9	8–1	8–7	8–5	9–7	8–7	9–8	8–9	9–9
P—Anchor Bolt Ctrs. Ash-pit.Inches	8	8	8	8	8	8	8	8	8	8	8	8	8	8	11	11	11	11	11	11
Q—Anchor Bolt Ctrs. Ash-pit.Inches	24	30	30	30	36	36	36	42	42	48	48	48	54	54	60	60	66	66	72	72
L—Total Length....Ft. In.	8–8	8–7	9–8	10–8	9–8	11–2	12–8	12–7	14–1	13–1	14–7	16–1	17–0	19–6	18–7	21–1	19–1	21–1	19–5	21–5
W—Total Width....Inches	4–6	5–0	5–0	5–0	5–6	5–6	5–6	6–0	6–0	6–6	6–6	6–6	7–8	7–8	8–2	8–2	8–8	8–8	9–2	9–2
Z—Width Double Setting....Inches	8–3	9–3	9–3	9–3	10–3	10–3	10–3	11–3	11–3	12–3	12–3	12–3	14–3	14–3	15–3	15–3	16–3	16–3	17–3	17–3
*Number of Common Brick....	1325	1450	1600	1750	1900	2150	2400	2650	2900	3000	3300	3600	5300	5900	6500	7200	7200	7700	7700	8200
*Common Brick for Two Boilers....	2250	2450	2700	2950	3300	3750	4100	4750	5350	5400	5900	6450	8350	10350	11350	12550	12400	13450	13250	13850

*Foundations not included.

Key letters N and V apply only to boiler settings with breeching connection at front.
Key letters R and T apply only to boiler settings with breeching connection at rear.

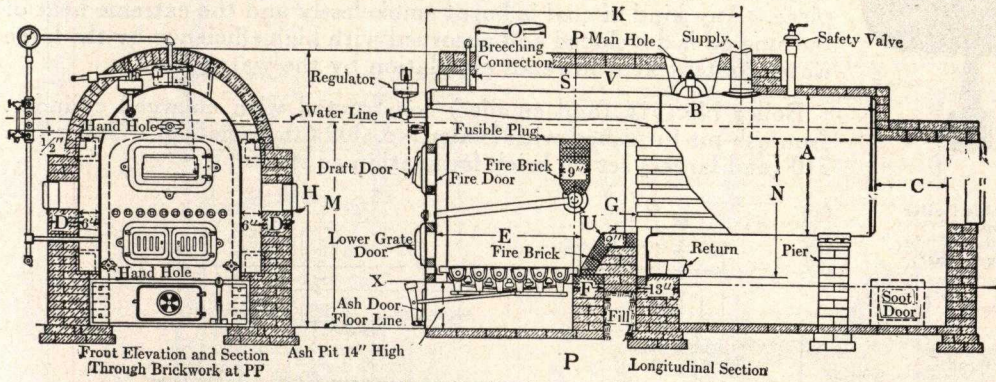
Kewanee Smokeless Boilers

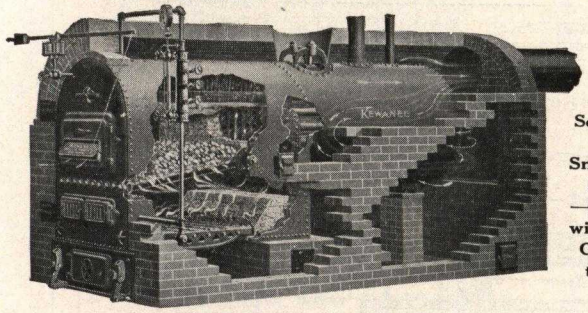
The Kewanee Up-Draft Boiler will burn any kind of fuel; hard, soft or lignite coal; coke, gas or oil. It will secure the maximum efficiency for an up-draft boiler. When soft coal is to be used smokelessly, we recommend our down-draft type of boiler, which is designed especially for burning soft coal smokelessly.

The heating surface of a Kewanee boiler is that portion of the boiler containing water, with which the fire and gases come in contact. This includes the fire-box of the boiler which is surrounded by water, the tubes, and the outside surface of the cylinder or shell below the water line. Kewanee boilers are practically all heating surface.

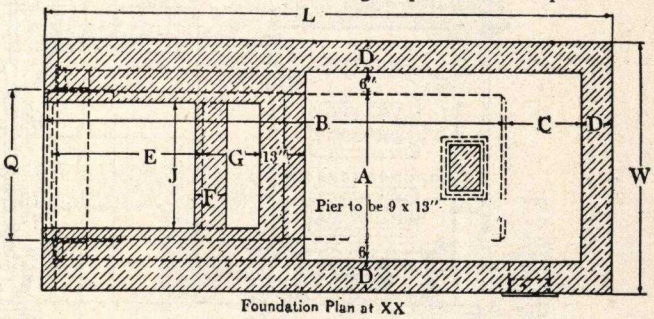
"The ratings published in this catalog are in conformity with the Steel Heating Boiler Institute's Code for Rating Low Pressure Heating Boilers." Fifteen pounds steam pressure is regular. Higher pressures are special.

Kewanee Smokeless Boiler with Stack Connection at Front





Sectional View Smokeless Boiler —Brick-set with Stack Connection at Rear



Specifications

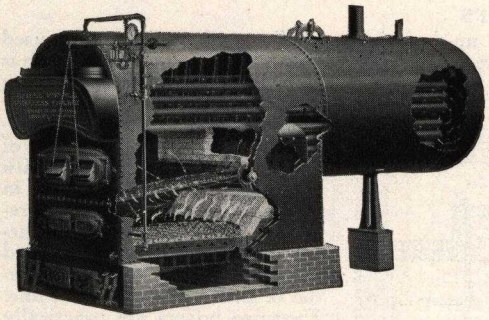
Number of Boiler	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Capacity, Steam .....Sq. Ft.	1650	2320	3120	3250	4260	5020	5250	6270	7490	8790	10370	11750	13620	14900	16720	18070	20380
Capacity, Water .....Sq. Ft.	2640	3710	4990	5200	6820	8030	8400	10030	11980	14060	16590	18800	21790	23840	26750	28910	32610
Approximate Weight .....Pounds	4600	5100	5600	6200	6800	7300	8500	9100	9800	12500	13900	16400	18000	20400	22100	23800	25800
Diameter of Boiler .....Inches	36	36	36	42	42	42	48	48	48	54	54	60	60	66	66	72	72
Length of Boiler Over-all ....Ft. In.	8–7	10–1	11–7	9–10	11–4	12–10	12–4	13–10	15–4	15–9	18–3	17–10	20–4	18–4	20–4	18–4	20–4
Width of Fire-box .....Inches	30	30	30	36	36	36	42	42	42	48	48	53	53	59	59	65	65
Length of Fire-box .....Inches	45	51	57	54	60	66	66	72	78	78	84	90	96	90	96	96	102
Heating Surface .....Sq. Ft.	206	243	288	297	345	393	425	480	535	628	741	839	973	1064	1194	1291	1456
Area of Upper Grate .....Sq. Ft.	5.9	7.2	8.4	8.6	10.1	11.4	11.8	13.2	15.0	17.1	19.1	21.1	23.3	23.5	25.9	28.5	31.3
Diameter of Breeching .....Inches	20	20	22	22	22	24	24	27	27	30	30	34	34	36	36	38	38
Diameter of Stack .....Inches	18	18	20	20	20	22	22	24	24	28	28	32	32	34	34	36	36
Minimum Height of Stack .....Feet	45	45	45	50	50	50	50	55	55	60	60	60	60	70	70	70	70
Diam. of Breeching, Two Boilers. In.	26	26	28	28	30	32	32	34	34	36	38	42	42	44	45	48	50
Diam. of Stack, Two Boilers ..Inches	24	24	26	26	28	30	30	32	32	34	36	38	38	40	42	44	46
Minimum Height of Stack, Two Boilers .....Feet	55	55	55	60	60	60	60	60	60	70	70	70	75	75	80	80	80
Size of Steam Opening .....Inches	5	6	6	6	6	6	6	6	8	8	8	8	8	8	8	8	8
Size of Return .....Inches	3	3	3	4	4	4	4	4	5	5	5	5	6	6	6	6	6
Size of Safety Valve .....Inches	1½	1½	2	2	2	2	2	2½	2½	3	3	3	3½	3½	4	4	2–2½
Height of Water-line .....Inches	55	55	55	58½	58½	58½	61	61	61	66	66	75	75	80	80	85½	85½
Height from Floor to Top of Brickwork .....Inches	77	77	77	83	83	83	90	90	90	96	96	108	108	114	114	120	120

Capacity for Oil, Gas or Stoker—Steam, 3500 to 24,750 sq. ft.
—Water 60% Greater than Steam

Setting Measurements

Number of Boiler	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
A—Diameter of Boiler .....Inches	36	36	36	42	42	42	48	48	48	54	54	60	60	66	66	72	72
B—Length Boiler .....Ft. In.	8–7	10–1	11–7	9–10	11–4	12–10	12–4	13–10	15–4	15–9	18–3	17–10	20–4	18–4	20–4	18–4	20–4
C—Rear Space .....Inches	17	17	17	22	22	22	22	22	22	24	24	24	24	24	24	28	28
D—Thickness Wall .....Inches	9	9	9	9	9	9	9	9	9	13	13	13	13	13	13	13	13
E—Length Grate .....Inches	31	37	43	37	43	49	43	49	55	55	61	61	67	61	67	67	73
J—Width Ash-pit .....Inches	31	31	31	37	37	37	43	43	43	49	49	54	54	60	60	66	66
F—Thickness Bridge Wall ...Inches	9	9	9	9	9	9	13	13	13	18	18	18	18	18	18	18	18
G—Grate to Tube Sheet .....Inches	14	14	14	17	17	17	23	23	23	23	23	29	29	29	29	29	29
U—Header to Bridge Wall ...Inches	7	8	9	9	10	12	10	11	12½	13	14	14	15½	14	15½	16	17
H—Height Brickwork .....Inches	77	77	77	83	83	83	90	90	90	96	96	108	108	114	114	120	120
K—Location Steam Supply ..Ft. In.	6–0	7–0	8–0	7–6	8–0	8–9	8–10	9–8	10–4	11–0	11–6	11–10	13–0	12–0	13–0	12–1	13–1
L—Length Over-all .....Ft. In.	10–9	12–3	13–9	12–5	13–11	15–5	14–11	16–5	17–11	18–10	21–4	20–11	23–5	21–5	23–5	21–9	23–9
M—Height Water-line .....Inches	55	55	55	58½	58½	58½	61	61	61	66	66	75	75	80	80	85½	85½
N—Height Side Flue .....Inches	36	36	36	39	39	39	42	42	42	48	48	51	51	58	58	63	63
O—Diam. Breeching Conn ...Inches	20	20	22	22	22	24	24	27	27	30	30	34	34	36	36	38	38
P—Anchor Bolt Ctr. Ash-pit, .Inches	8	8	8	8	8	8	8	8	8	8	8	11	11	11	11	11	11
Q—Anchor Bolt Ctr. Ash-pit, .Inches	36	36	36	42	42	42	48	48	48	54	54	60	60	66	66	72	72
**R—Height Brick Shelf ....Inches	47	47	47	50	50	50	53	53	53	56	56	63	63	66	66	69	69
S—Top Flue Space .....Inches	7	7	7	7	7	7	8	8	8	8	8	10	10	10	10	10	10
**T—Length Brick Shelf ....Inches	36	42	54	36	48	60	54	66	80	84	102	90	108	90	108	84	102
V—Length of Arch .....Ft. In.	5–3	6–3	7–3	7–0	7–6	8–0	8–1	8–11	9–9	10–0	10–6	10–10	12–0	11–0	12–0	11–1	12–1
W—Width Over-all .....Ft. In.	5–6	5–6	5–6	6–0	6–0	6–0	6–6	6–6	6–6	7–8	7–8	8–2	8–2	8–8	8–8	9–2	9–2
**Z—Width Double Setting ..Ft. In.	10–3	10–3	10–3	11–3	11–3	11–3	12–3	12–3	12–3	14–3	14–3	15–3	15–3	16–3	16–3	17–3	17–3
*Number Common Brick	2200	2350	2450	2600	2850	3100	3700	4000	4300	6000	6600	7350	7900	7800	8300	8700	9300
Number Fire Brick	85	85	85	100	100	100	130	130	130	155	155	215	215	250	250	310	310
*Common Brick for Two Boilers ...	3900	4100	4300	4500	4950	5350	6500	7000	7550	10500	11500	12750	13700	13200	14200	15000	16000

*Foundation not included. Key letters N and V apply only to boiler settings with breeching connection at front as shown above.
**Key letters R and T apply only to boiler settings with breeching connection at rear; and letter Z applies only to Double settings both, as on Brickset Up-Draft Boiler diagram on preceding page.

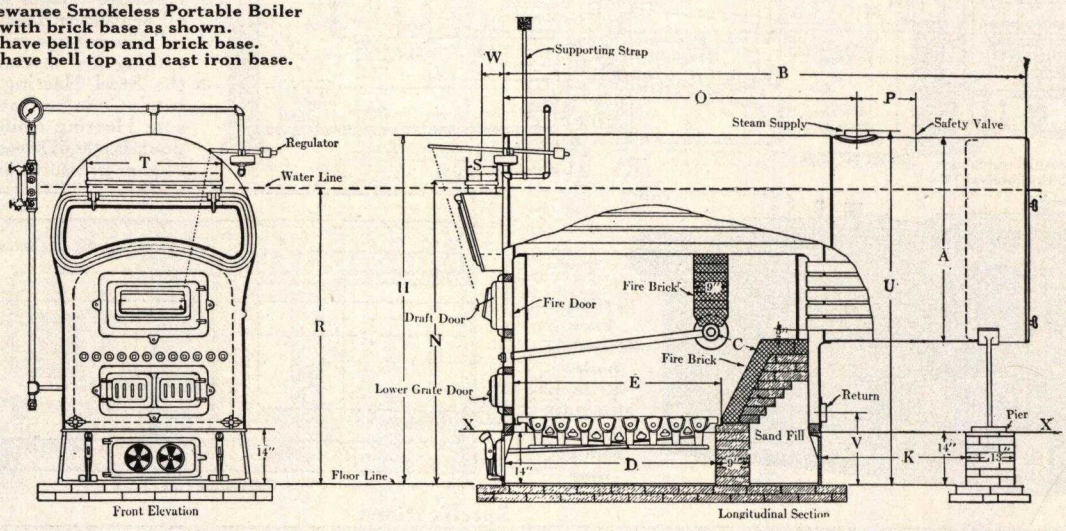


Section Kewanee Smokeless Portable Boiler
Nos. 315-324 with brick base as shown.
Nos. 310-314 have bell top and brick base.
Nos. 307-309 have bell top and cast iron base.

Kewanee Smokeless Portable Boiler

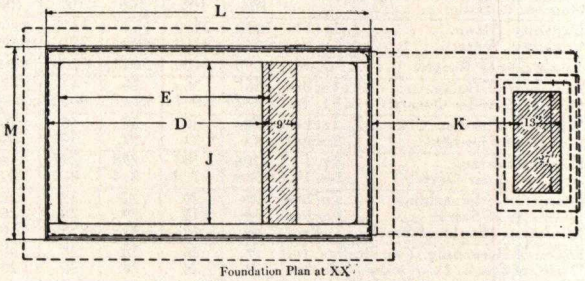
The Kewanee Smokeless Portable firebox heating boiler eliminates brick setting. Built of riveted steel, it goes into the building in one piece. Any kind of coal is burnt smokelessly and the extreme heat of burning oil is developed and absorbed with high efficiency by the large water content kept in rapid circulation by the water grate.

Boiler No. 314 (and smaller) constructed with enlarged cylinder. Iron ash pit furnished with Boiler No. 309 (and smaller). Boiler No. 310 (and larger) set on brick foundation as shown.



Section Kewanee Smokeless Boiler Showing Portable Type Setting Plan Boilers No. 307-314

Note—Boilers Nos. 310, 311, 312, 313 and 314 are constructed with bell top as shown above, but are set on brick foundation instead of cast iron base as shown.

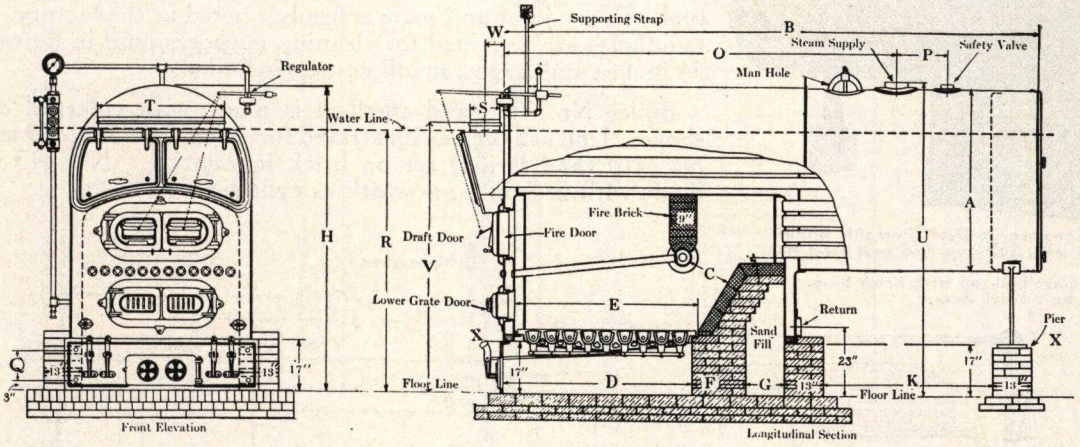


Specifications

Number of Boiler	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324
Capacity, Steam Sq. Ft.	3390	4260	5020	6100	6950	7650	8290	9000	10100	10820	12770	14740	16860	18420	20410	21690	29040	36810
Capacity, Water Sq. Ft.	5420	6820	8030	9760	11120	12240	13260	14400	16160	17310	20430	23580	26980	29470	32660	34700	46460	58900
Approximate Weight, Pounds	7800	8600	9300	10400	11100	11900	14500	15300	16900	17800	20900	22900	25000	26500	28800	30000	37000	43000
Diameter of Boiler Inches	48	48	48	54	54	54	60	60	60	60	66	66	72	72	78	78	84	84
Length of Boiler Over-all Ft. In.	9–1	10–5	11–5	10–11	11–11	12–11	12–11	13–11	15–3	16–3	15–9	17–9	16–7	17–11	17–10	18–10	20–1	24–1
Width of Fire-box Inches	36	36	36	42	42	42	48	48	53	53	59	59	65	65	71	71	77	77
Length of Fire-box Inches	54	60	66	72	78	84	78	84	90	96	90	96	96	102	102	108	114	120
Heating Surface Sq. Ft.	297	352	391	446	496	546	592	643	721	773	912	1053	1204	1316	1458	1549	2074	2629
Area of Upper Grate Sq. Ft.	8.8	10.1	11.4	12.9	14.7	16.5	17.1	18.5	20.0	21.4	23.5	25.9	28.5	29.9	32.6	34.6	41.7	44.8
Diam. of Breeching Inches	22	22	22	24	24	24	26	26	28	28	30	32	34	34	36	36	40	42
Diameter of Stack Inches	20	20	20	22	22	22	24	24	26	26	28	30	32	32	34	34	38	40
Min. Height of Stack Feet	50	55	55	55	55	60	60	60	65	65	65	70	70	70	80	90	90	100
Diameter of Breeching, Two Boilers Inches	30	30	30	34	34	34	38	38	40	40	44	46	50	50	52	52	56	56
Diameter of Stack, Two Boilers Inches	28	28	28	31	31	31	34	34	36	36	40	42	46	46	48	48	54	54
Minimum Height of Stack, Two Boilers Feet	60	65	65	65	65	70	70	70	75	75	75	80	80	80	90	100	100	110
Size of Steam Opening Inches	6	6	6	6	6	6	8	8	8	8	8	8	8	8	8	8	10	10
Size of Return Inches	4	4	4	4	4	4	5	5	5	5	6	6	6	6	6	6	6	6
Size of Safety Valve Inches	2	2	2	2½	2½	2½	3	3	3	3½	3½	4	4	4	2–2½	2–3	2–3	2–3½
Height of Water-line Inches	71	71	71	76	76	76	83	83	87	87	90	90	96	96	97	97	105	105
Height Floor to Top of Shell Inches	84	84	84	89	89	89	98	98	101	101	107	107	113	113	115	115	121	121
Distance Required to Open Rear Flue Doors In.	26	26	26	28	28	28	32	32	32	32	35	35	37	37	40	40	43	43

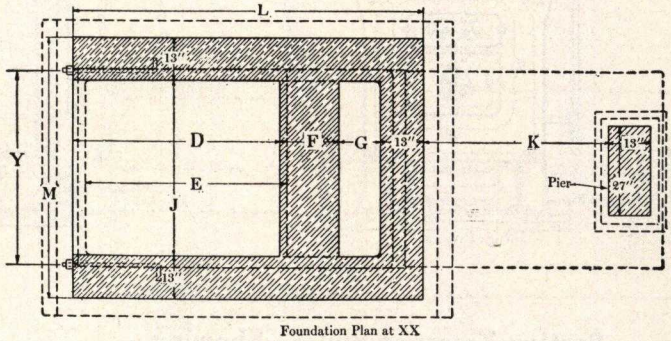
Capacity for Oil, Gas or Stoker—Steam, 5050 to 44700 sq. ft.; Water 60% Greater than Steam.

Kewanee Smokeless Portable Boiler



Section Kewanee Smokeless Boiler Showing Portable Type Setting Plan and Foundation.

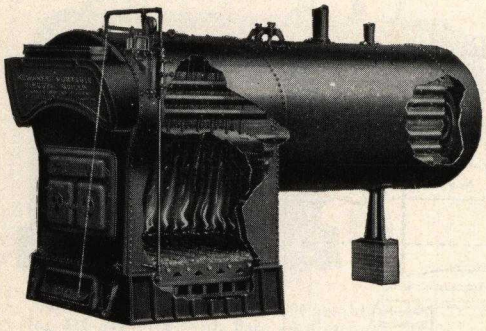
Boilers No. 315-324



Setting Measurements

Number of Boiler	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324
A—Diameter Boiler Inches	48	48	48	54	54	54	60	60	60	60	66	66	72	72	78	78	84	84
B—Length Boiler Ft. In.	9–1	10–5	11–5	10–11	11–11	12–11	12–11	13–11	15–3	16–3	15–9	17–9	16–7	17–11	17–10	18–10	20–1	24–1
E—Length Grate Inches	37	43	49	49	55	61	55	61	61	67	61	67	67	73	73	73	79	85
C—Header to Bridge Wall Inches	9	10	11½	11	12½	14	12½	14	14	15	15	16	16	17	17	18	18	19
D—Length Ash-pit Inches	38	44	50	50	56	62	56	62	63	69	63	69	69	75	75	75	81	87
F—Thickness Bridge Wall Inches	9	9	9	13	13	13	13	13	18	18	18	18	18	18	18	18	18	18
G—Bridge Wall to Rear Wall In.	.....	.....	.....	12	12	12	12	12	13	13	13	13	13	13	13	19	19	19
K—Ash Pit Base or Wall to Pier Inches	29	39	45	27	33	39	45	51	57	63	62	80	63	74	72	79	84	126
J—Width Ash-pit Inches	37	37	37	43	43	43	49	49	53	53	59	59	65	65	71	71	77	77
M—Width Foundation Inches	46	46	46	61	61	61	67	67	79	79	85	85	91	91	97	97	103	103
L—Length Base Inches	61	67	73	84	90	96	90	96	107	113	107	113	113	119	119	125	131	137
H—Height Boiler Inches	84	84	84	89	89	89	98	98	101	101	107	107	113	113	115	115	121	121
U—Height Supply Inches	85	85	85	90	90	90	99	99	103	103	109	109	115	115	117	117	123	123
R—Height Water Line Inches	71	71	71	76	76	76	83	83	87	87	90	90	96	96	97	97	105	105
O—Location Supply Ft. In.	5–11	6–8	7–3	7–6	8–2	8–9	8–9	9–3	10–11	11–6	11–0	11–9	11–7	12–2	12–2	12–9	13–8	15–0
P—Location Safety Valve Inches	12	14	14	13	13	15	15	18	16	18	16	18	15	18	18	16	18	20
W—Center Breeching Connection to Front of Boiler Inches	8	8	8	8	8	8	9¼	9¼	9¼	9¼	10½	10½	11½	11½	11½	11½	13	13
S—Width Breeching Conn Inches	10	10	10	10	10	10	12½	12½	12½	12½	15	15	17	17	17	17	20	20
T—Length Breeching Conn Inches	36	36	36	42	42	42	46	46	46	46	50	50	54	54	60	60	64	64
*Number Common Brick	200	200	200	800	825	850	1025	1050	1300	1350	1300	1350	1375	1450	1400	1475	1575	1600
Number of Fire Brick	115	115	115	155	155	155	195	195	210	215	240	240	255	255	290	315	425	425
Outside Surface to be Covered Sq. Ft.	148	157	173	184	212	221	255	265	266	280	290	330	335	360	370	400	455	545
**N—Height of Breeching Connection Inches	76	76	76	80	80	80	88	88	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
V—Height Breeching Conn Inches	.....	.....	.....	.....	.....	.....	.....	.....	90	90	93	93	100	100	101	101	109	109
**V—Height of Return Inches	19	19	19	19	19	19	20	20	23	23	23	23	23	23	23	23	23	23
Q—Anchor Bolt Centers for Ash-pit Front Inches	.....	.....	.....	8	8	8	8	8	11	11	11	11	11	11	11	11	11	11
Y—Anchor Bolt Centers for Ash-pit Front Inches	.....	.....	.....	48	48	48	54	54	60	60	66	66	72	72	78	78	84	84

*Foundations not included.
**Shown on opposite page.

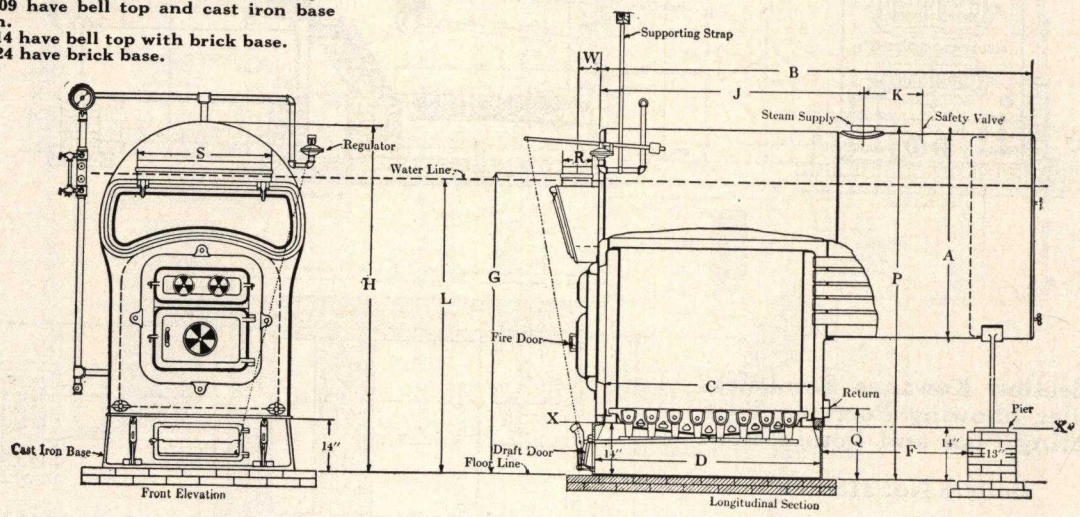


Section Kewanee Up-Draft Portable Boiler
Nos. 407-409 have bell top and cast iron base as shown.
Nos. 410-414 have bell top with brick base.
Nos. 415-424 have brick base.

Kewanee Up-Draft Portable Boiler

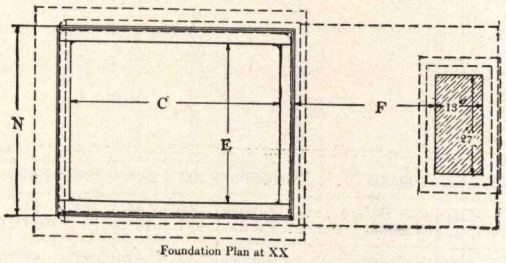
Kewanee Up-Draft Portable firebox heating boilers need no brick setting and go into the building in one piece. They burn any kind of fuel. Every joint and seam is firmly riveted at the factory. Sufficient handholes are provided for cleaning purposes, and in portable boilers 54 inches and larger, manholes are included.

Boiler No. 414 (and smaller) is made with enlarged cylinder as shown. Iron ash pits, as illustrated furnished with No. 409 and smaller. No. 410 (and larger) set on brick foundation. No. 415 and larger made with firebox same width as cylinder.



Section Kewanee Boiler—Showing Portable Type Setting Plan Boilers No. 407-414

Note--Boilers Nos. 410, 411, 412, 413 and 414 are constructed with bell top as illustrated above but are set on brick base instead of cast iron ash-pit.



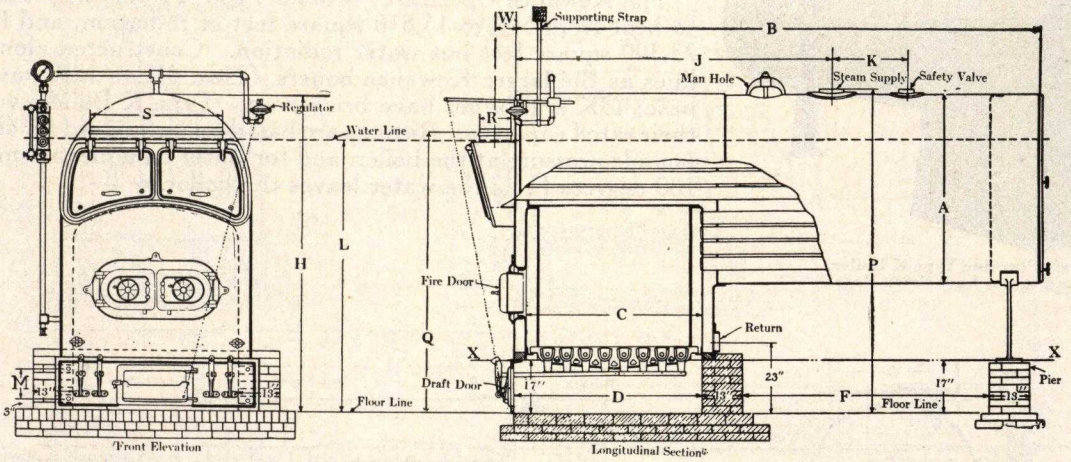
Foundation Plan at XX

Specifications

Number of Boiler	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424
Capacity, Steam.....Sq. Ft.	2550	3340	4170	4300	5130	6070	7440	8760	8700	10310	12420	14560	16350	18240	21200	23950	30930	33980
Capacity, Water.....Sq. Ft.	4080	5340	6670	6880	8210	9710	11900	14020	13920	16500	19870	23300	26160	29180	33920	38320	49490	54370
Approximate Weight.....Pounds	6900	7400	8300	9000	9800	10600	13200	14100	15900	17300	20400	22000	24000	25700	28000	31000	37000	40000
Diameter of Boiler.....Inches	48	48	48	54	54	54	60	60	60	60	66	66	72	72	78	78	84	84
Length of Boiler.....Ft. In.	8–7	9–6	11–1	10–0	11–1	12–1	12–5	13–7	14–4	16–2	15–9	17–4	15–11	17–6	17–11	19–11	20–1	22–1
Width of Fire-box.....Inches	36	36	36	42	42	42	48	48	53	53	59	59	65	65	71	71	77	77
Length of Fire-box.....Inches	38	44	50	44	50	56	56	62	56	62	62	68	68	74	74	80	80	86
Height of Fire-box.....Inches	41½	41½	41½	44	44	44	49	49	49	49	52	52	54½	54½	55	55	58	58
Heating Surface.....Sq. Ft.	278	310	373	416	465	515	565	626	676	778	929	1040	1168	1303	1514	1711	2209	2427
Area of Grate.....Sq. Ft.	9.6	11.1	12.6	12.9	14.7	16.5	18.8	20.8	20.7	22.9	25.5	28.0	30.8	33.5	36.6	39.6	42.9	46.1
Diameter of Breeching.....Inches	22	22	22	24	24	24	26	26	28	28	30	32	34	34	36	36	40	42
Diameter of Stack.....Inches	20	20	20	22	22	22	24	24	26	26	28	30	32	32	34	34	38	40
Minimum Height of Stack ...Feet	50	50	55	55	55	60	60	60	65	65	65	70	70	70	80	90	90	100
Diameter of Breeching, Two Boilers.....Inches	30	30	30	34	34	34	38	38	40	40	44	46	50	50	52	52	56	56
Diam. of Stack. Two Boilers. Inches	28	28	28	31	31	31	34	34	36	36	40	42	46	46	48	48	54	54
Minimum Height of Stack, Two Boilers.....Feet	60	60	65	65	65	70	70	70	75	75	75	80	80	80	90	100	100	110
Size of Steam Opening.....Inches	6	6	6	6	6	6	8	8	8	8	8	8	8	8	8	8	10	10
Size of Return.....Inches	4	4	4	4	4	4	5	5	5	5	6	6	6	6	6	6	6	6
Size of Safety Valve.....Inches	2	2	2	2	2½	2½	2½	3	3	3	3½	3½	4	4	2–2½	2–3	2–3	2–3
Height of Water Line.....Inches	71	71	71	76	76	76	83	83	87	87	90	90	96	96	97	97	105	105
Height Floor to Top of Shell. Inches	84	84	84	89	89	89	98	98	101	101	107	107	113	113	115	115	121	121
Distance Required to Open Rear Flue Doors.....Inches	26	26	26	28	28	28	32	32	32	32	35	35	37	37	40	40	43	43

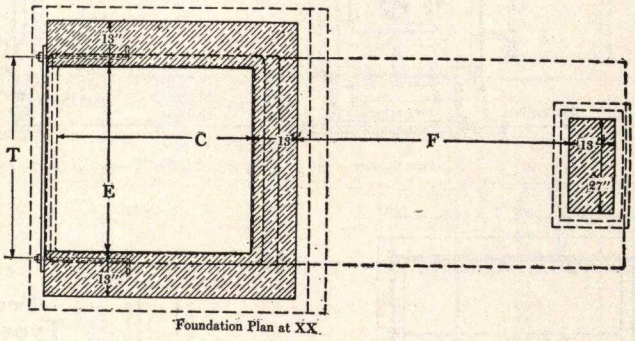
Capacity for Oil, Gas or Stoker—Steam, 4730 to 40480 sq. ft.; Water, 60% Greater than Steam.

Kewanee Up-Draft Portable Boiler



On Nos. 423 and 424 Ash Pit has 4-Inch extra depth below floor level.

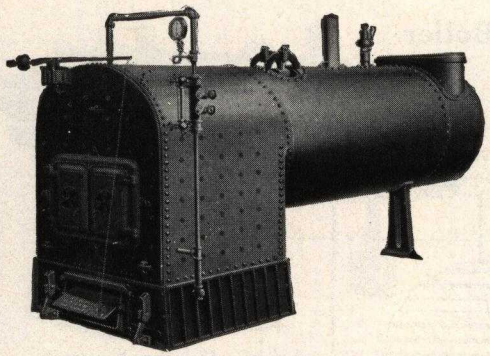
Section Kewanee Boiler Showing Portable Setting Plan and Foundation. Boilers No. 415-424.



Setting Measurements

Number of Boiler	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424
A—Diameter of Boiler.....Inches	48	48	48	54	54	54	60	60	60	60	66	66	72	72	78	78	84	84
B—Length of Boiler.....Ft. In.	8–7	9–6	11–1	10–0	11–1	12–1	12–5	13–7	14–4	16–2	15–9	17–4	15–11	17–6	17–11	19–11	20–1	22–1
C—Length of Grate.....Inches	38	44	50	44	50	56	56	62	56	62	62	68	68	74	74	80	80	86
D—†Length of Ash-pit.....Inches	45	51	57	47	53	59	59	65	60	66	66	72	72	78	78	84	84	90
N—Width of Ash-pit Base..Inches	46	46	46	61	61	61	67	67	79	79	85	85	91	91	97	97	103	103
E—†Width of Ash-pit.....Inches	36	36	36	43	43	43	49	49	53	53	59	59	65	65	71	71	77	77
F—†Ash-pit Base to Pier..Ft. In.	3–3	3–8	4–9	3–9	4–4	4–10	5–2	5–10	6–7	7–11	7–5	8–5	6–11	7–11	8–4	9–10	9–10	11–4
**G—Height Breeching Conn..In.	76	76	76	80	80	80	88	88	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
H—Height of Boiler.....Inches	84	84	84	89	89	89	98	98	101	101	107	107	113	113	115	115	121	121
P—Height of Steam Supply..Inches	85	85	85	90	90	90	99	99	103	103	109	109	115	115	117	117	123	123
Q—Height of Breeching Conn..In.	.....	.....	.....	.....	.....	.....	.....	.....	90	90	93	93	100	100	101	101	109	109
**Q—Height of Return....Inches	19	19	19	19	19	19	20	20	23	23	23	23	23	23	23	23	23	23
L—Height of Water-line....Inches	71	71	71	76	76	76	83	83	87	87	90	90	96	96	97	97	105	105
J—Location of Steam Supply.....Ft. In.	4–8	5–3	6–3	5–6	6–4	8–0	8–3	8–8	8–5	9–5	9–4	10–2	9–8	11–1	11–3	12–0	12–6	12–6
K—Location of Safety Valve...In.	13	14	18	16	18	13	16	18	21	29	18	32	18	26	24	30	24	21
W—Center of Breeching Connection to Front of Boiler...Inches	8	8	8	8	8	8	9¼	9¼	9¼	9¼	10½	10½	11½	11½	11½	11½	13	13
R—Width Breeching Conn..Inches	10	10	10	10	10	10	12½	12½	12½	12½	15	15	17	17	17	17	20	20
S—Length Breeching Conn..Inches	36	36	36	42	42	42	46	46	46	46	50	50	54	54	60	60	64	64
*Number Common Brick.....	70	70	70	450	480	510	530	560	680	710	740	760	790	820	840	885	900	935
Outside Surface to be Covered.....Sq. Ft.	115	130	150	155	175	185	190	220	250	280	290	310	315	345	385	425	455	505
M—†Center to Center of Anchor Bolts.....Inches	.....	.....	.....	8	8	8	8	8	11	11	11	11	11	11	11	11	15	15
T—†Center to Center of Anchor Bolts.....Inches	.....	.....	.....	48	48	48	54	54	60	60	66	66	72	72	78	78	84	84

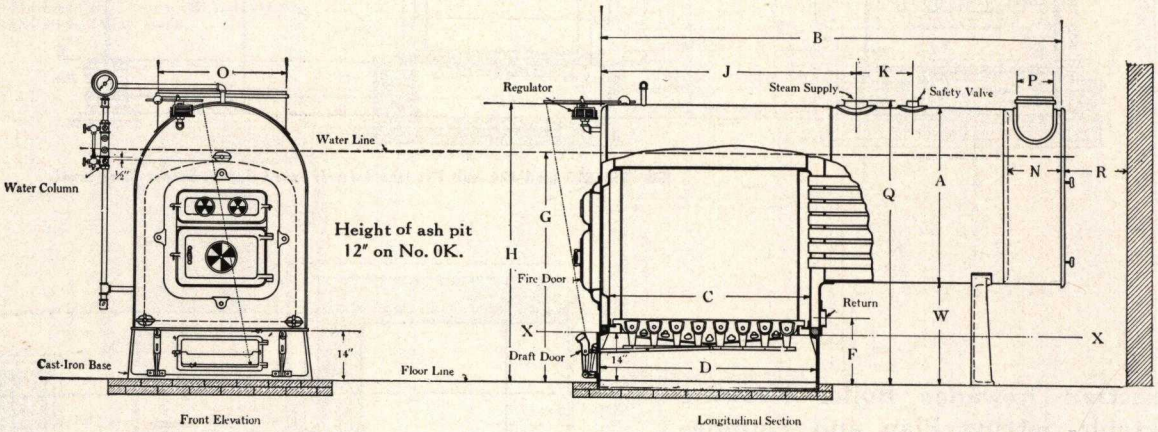
*Foundations not included.
†These dimensions on Boilers No. 410 and larger are for brick base.
**Shown on opposite page.

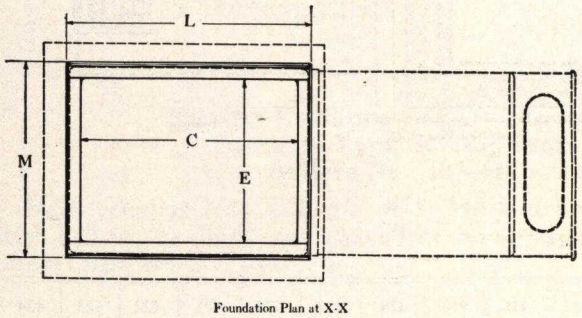


Up-Draft Portable Type K Boiler.
13K and larger have Brick Base

Kewanee Up-Draft Portable Type K Boiler

The Kewanee Up-Draft Portable Type K Boiler has steam capacity to heat from 510 to 15,810 square feet of radiation, and from 820 to 25,300 square feet hot water radiation. Constructed along the same lines as the larger Kewanee boilers. Nos. 0K to 12K have cast iron base; 13K and larger have brick base. Type K Boilers will carry all their rated capacity. Ratings are based on a standard for steam of two pounds pressure at the boiler, and for water on a mean temperature of 180 degrees F. as the water leaves the boiler.





Section Kewanee Boiler Showing Up-Draft Portable Type K Setting Plan and Foundation. Boilers No. 0K-12K.

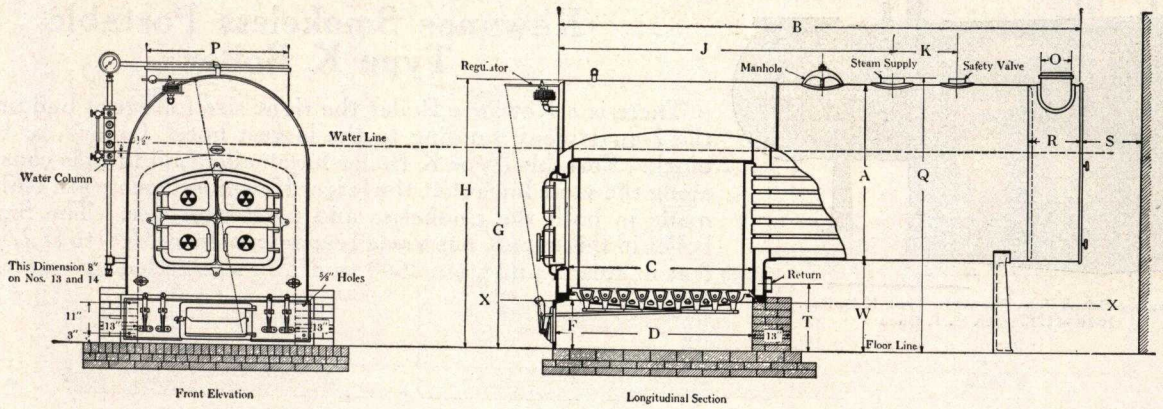
Measurements Tables on next page.

Specifications

Number of Boiler	0K	1K	2K	3K	4K	5K	6K	8K	9K	10K	11K	12K	13K	14K	15K	16K	17K	18K	19K	20K
Capacity, Steam....Sq. Ft.	510	690	940	1240	1380	1830	2410	3340	3850	4170	4730	5290	6260	7520	8440	9910	11070	12540	13890	15810
Capacity, Water....Sq. Ft.	820	1100	1500	1980	2210	2930	3860	5340	6160	6670	7570	8460	10020	12030	13500	15860	17710	20060	22220	25300
Approximate Weight....Pounds	2600	2900	3200	3500	3900	4400	4900	6300	6900	7600	8300	9000	11100	12400	15000	16600	17900	19200	21900	23700
Diameter of Boiler....Inches	24	30	30	30	36	36	36	42	42	48	48	48	54	54	60	60	66	66	72	72
Length of Boiler Over-all....Ft. In.	7–9	7–10	8–10	9–10	8–10	10–4	11–10	11–4	12–10	11–10	13–4	14–10	15–4	17–10	17–0	19–6	17–6	19–6	17–6	19–6
Width of Fire-box....Inches	19	24	24	24	30	30	30	36	36	42	42	42	48	48	53	53	59	59	65	65
Length of Fire-box....Inches	26	26	32	38	32	38	44	44	50	44	50	56	56	62	62	68	62	68	68	74
Height of Fire-box....Inches	30	35	35	35	38	38	38	41	41	44	44	44	49	49	54	54	59	59	64	64
Heating Surface....Sq. Ft.	61	83	93	104	139	164	190	241	275	298	338	378	447	537	603	708	791	896	992	1129
Area of Grate....Sq. Ft.	3.5	4.4	5.4	6.4	6.8	8.0	9.3	11.1	12.6	12.9	14.7	16.5	18.8	20.8	22.9	25.1	25.5	28.0	30.8	33.5
Diameter of Breeching....Inches	10	12	14	16	16	18	18	20	22	22	24	24	28	28	32	32	32	32	36	36
Diameter of Stack....Inches	10	12	12	14	14	16	16	18	20	20	22	22	26	26	30	30	30	30	34	34
Minimum Height of Stack....Feet	35	35	35	35	35	35	40	40	40	40	45	45	45	45	50	50	55	55	55	55
Diam. of Breeching, Two Boilers..In.	16	18	20	22	22	24	24	28	32	32	32	34	36	36	40	40	40	42	44	46
Diam. of Stack, Two Boilers..Inches	16	18	18	20	20	22	22	26	28	28	30	32	34	34	36	36	36	38	40	42
Minimum Height of Stack, Two Boilers....Feet	40	40	40	40	40	40	40	45	45	45	45	45	50	55	55	65	65	65	65	65
Size of Steam Opening....Inches	3	4	4	5	5	6	6	6	6	6	6	8	8	8	8	8	8	8	8	8
Size of Return....Inches	2	2½	2½	3	3	3	3	4	4	4	4	5	5	5	5	5	6	6	6	6
Size of Safety Valve....Inches	1	1¼	1¼	1¼	1½	1½	2	2	2	2	2½	2½	2½	3	3	3½	3½	3½	4	4
Height of Water-line....Inches	45	52	52	52	55	55	55	58½	58½	61	61	61	66	66	75	75	80	80	85½	85½
Height from Floor to Top of Boiler....Inches	51	59	59	59	65	65	65	71	71	77	77	77	83	83	93	93	99	99	105	105

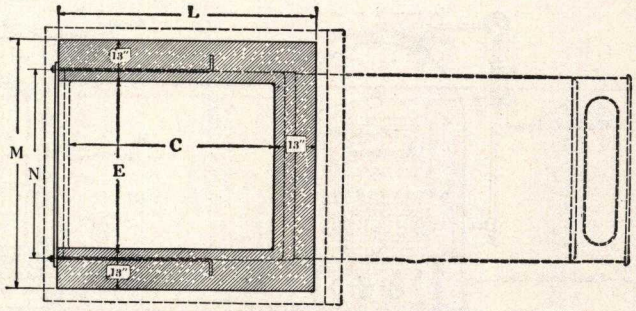
Capacity for Oil, Gas or Stoker—Steam, 1040 to 19190 sq. ft.; Water, 60% Greater than Steam.

Kewanee Up-Draft Portable Type K Boiler



Section Kewanee Boiler Showing Up-Draft Portable Type K Setting Plan and Foundation.

Boilers No. 13K-20K.



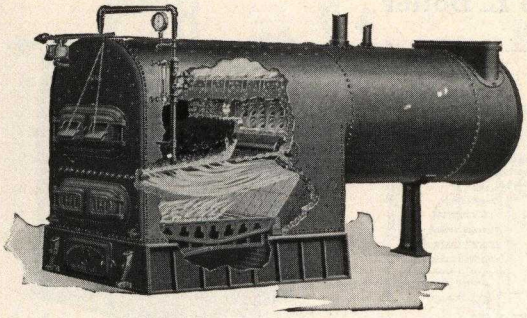
Measurements Up-Draft Portable Type K Boilers 13K-20K

Number of Boiler	13K	14K	15K	16K	17K	18K	19K	20K
A—Diameter of Boiler...Inches	54	54	60	60	66	66	72	72
B—Length of Boiler...Ft. In.	15–4	17–10	17–0	19–6	17–6	19–6	17–6	19–6
C—Length of Grate...Inches	56	62	62	68	62	68	68	74
D—Length of Ash-pit...Inches	59	65	65	71	65	71	71	77
E—Width of Ash-pit...Inches	49	49	54	54	60	60	66	66
F—Height of Ash-pit...Inches	14	14	17	17	17	17	17	17
G—Height of Water-line...Inches	66	66	75	75	80	80	85½	85½
H—Height of Boiler...Inches	83	83	93	93	99	99	105	105
J—Location of Steam Supply...Ft. In.	9–2	9–8	9–6	10–8	9–8	10–8	9–9	10–9
K—Location of Safety Valve...Inches	21	30	26	30	26¾	30	20	34
L—Length of Foundation...Inches	72	78	78	84	78	84	84	90
M—Width of Foundation...Inches	75	75	80	80	86	86	92	92
N—Center to Center Bolts in Ash-pit Front...Inches	54	54	60	60	66	66	72	72
O—Width Breeching Connection. Inches	10	10	12	12	12	12	13	13
P—Length Breeching Connection. Inches	46	46	50	50	54	54	68	68
Q—Height of Steam Supply...Inches	85	85	95	95	101	101	107	107
R—Depth of Smoke Box...Inches	16	16	18	18	18	18	18	18
S—Minimum Space Req. at Rear. Inches	30	30	33	33	36	36	39	39
T—Height of Return...Inches	20	20	23	23	23	23	23	23
W—Floor Line to Bottom of Cylinder...Inches	29	29	33	33	33	33	33	33
*Number of Common Brick	460	490	710	740	740	760	790	820
Outside Surface to Cover...Sq. Ft.	200	235	275	314	311	345	338	366

Measurements Up-Draft Portable Type K Boilers 0K-12K (Illustrated on Opposite Page)

Number of Boiler	0K	1K	2K	3K	4K	5K	6K	8K	9K	10K	11K	12K
A—Diameter of Boiler...Inches	24	30	30	30	36	36	36	42	42	48	48	48
B—Length of Boiler...Ft. In.	7–9	7–10	8–10	9–10	8–10	10–4	11–10	11–4	12–10	11–10	13–4	14–10
C—Length of Grate...Inches	26	26	32	38	32	38	44	44	50	44	50	56
D—Length of Ash-pit...Inches	31	33	39	45	39	45	51	51	57	51	57	63
E—Width of Ash-pit...Inches	19	24	24	24	30	30	30	36	36	42	42	42
F—Height of Return...Inches	15½	18	18	19	19	19	19	19	19	19	19	20
G—Height of Water-line..Inches	45	52	52	52	55	55	55	58½	58½	61	61	61
H—Height of Boiler...Inches	51	59	59	59	65	65	65	71	71	77	77	77
J—Location of Steam Supply...Ft. In.	4–0	4–0	4–8	5–6	4–11	5–11	6–11	6–8	7–2	7–0	7–10	8–6
K—Location of Safety Valve...Inches	12	12	15	16	15	18	18	13	13	16	18	18
L—Length of Ash-pit Base...Inches	32	34	40	46	40	46	52	52	58	52	58	64
M—Width of Ash-pit Base...Inches	27	34	34	34	40	40	40	46	46	52	52	52
N—Depth of Rear Smoke Box...Inches	12	16	16	16	16	16	16	16	16	16	16	16
O—Length of Breeching Connection...Inches	10 in. diam.	16	16	16	24	24	24	30	30	36	36	36
P—Width of Breeching Connection...Inches		8	8	8	10	10	10	10	10	10	10	10
Q—Height Steam Supply. Inches	53	61	61	61	67	67	67	73	73	79	79	79
R—Minimum Space Required at Rear...Inches	24	18	18	18	21	21	21	24	24	27	27	27
W—Floor Line to Bottom of Cylinder...Inches	27	29	29	29	29	29	29	29	29	29	29	29
Outside Surface to Cover. Sq. Ft.	55	68	77	85	91	106	120	133	149	157	177	197

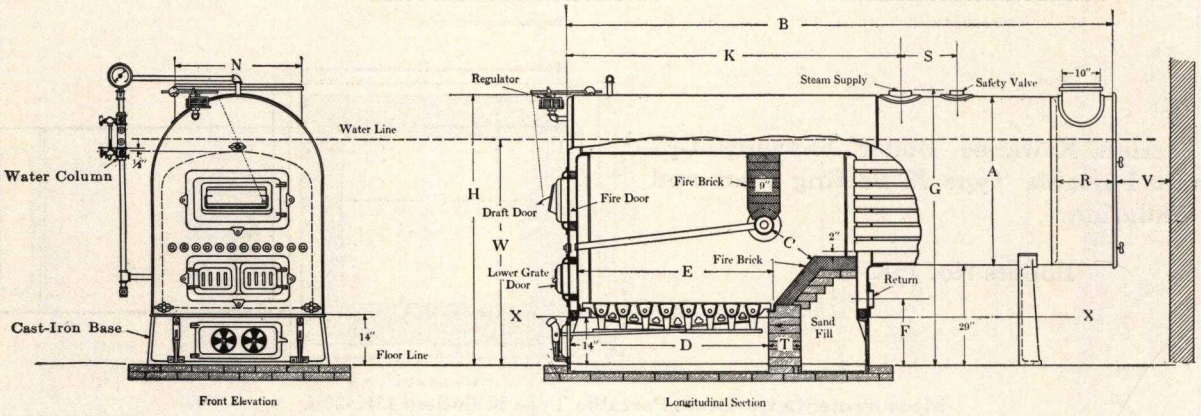
*Foundation not included.

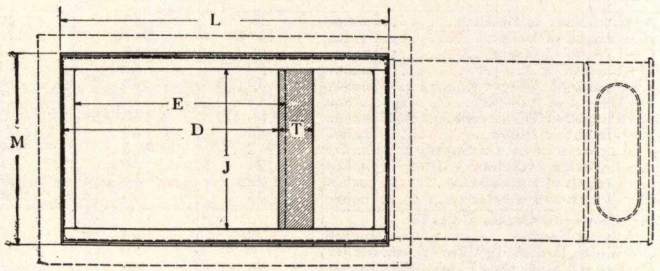


Kewanee Smokeless Portable Type K Boiler. 104K-112K with C. I. Base

Kewanee Smokeless Portable Type K Boiler

There is a Kewanee Boiler the right size for every building from the 2-apartment building to the largest hotel, factory, or business block. Portable Type K Boiler for smaller buildings is constructed along the same lines that the larger Kewanee Boilers are built. It is made in both the smokeless and up-draft types. The Smokeless boiler in this type K has a rated capacity of from 1650 to 17,220 square feet in steam, and from 2640 to 27,550 square feet in water.





Section Kewanee Smokeless Boiler Showing Portable Type K Setting Plan and Foundation.

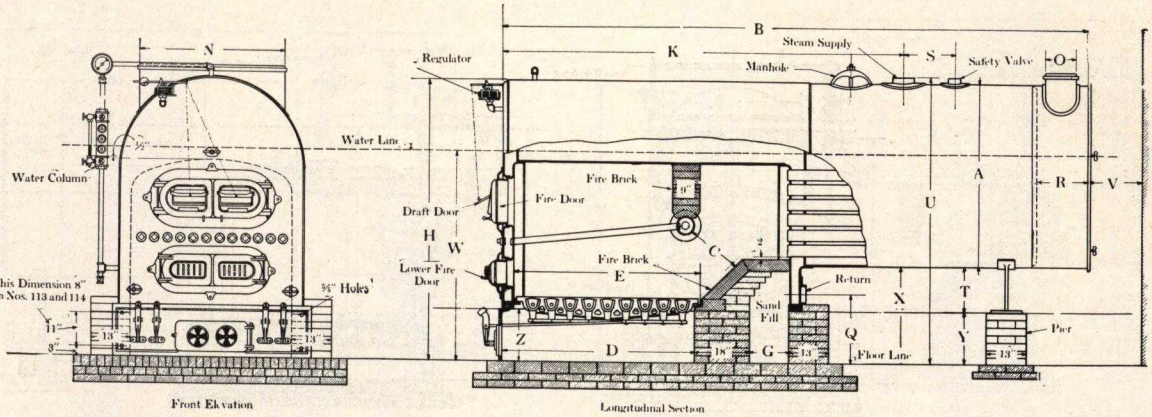
Boilers No. 104K-112K.

Specifications and Measurements

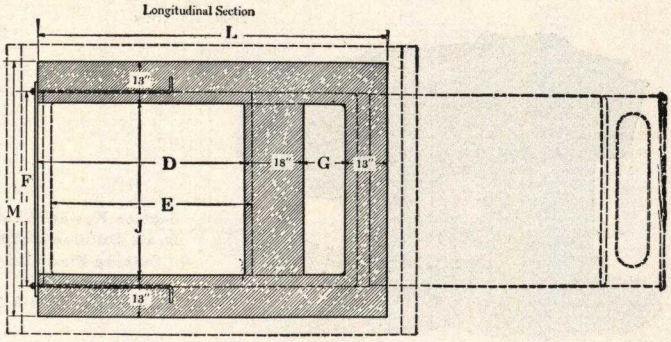
Number of Boiler	104K	105K	106K	107K	108K	109K	110K	111K	112K	113K	114K	115K	116K	117K	118K	119K	120K
Capacity, Steam Sq. Ft.	1650	2320	3080	3250	3790	4310	4730	5340	5950	7000	8260	9480	11020	12310	13820	15260	17220
Capacity, Water Sq. Ft.	2640	3710	4930	5200	6060	6900	7570	8540	9520	11200	13220	15170	17630	19700	22110	24420	27550
Approximate Weight Pounds	5000	5600	6100	6900	7500	8100	9200	9900	10600	12600	14000	16500	18100	20500	22200	24000	26000
Width of Fire-box Inches	30	30	30	36	36	36	42	42	42	48	48	53	53	59	59	65	65
Length of Fire-box Inches	45	51	57	54	60	66	66	72	78	78	84	90	96	90	96	96	102
Heating Surface Sq. Ft.	157	185	220	234	271½	308	338	381	425	500	590	677	787	879	987	1090	1230
Area of Upper Grate Sq. Ft.	5.9	7.2	8.4	8.6	10.1	11.4	11.8	13.2	15.0	17.1	19.1	21.1	23.3	23.5	25.9	28.5	31.3
Diameter of Breeching Inches	20	20	22	22	22	24	24	27	27	30	30	34	34	36	36	38	38
Diameter of Stack Inches	18	18	20	20	20	22	22	24	24	28	28	32	32	34	34	36	36
Minimum Height of Stack Feet	40	40	40	45	45	45	45	50	50	55	55	55	55	65	65	65	65
Diameter of Breeching, Two Boilers Inches	26	26	28	28	30	32	32	34	34	36	38	42	42	44	45	48	50
Diameter of Stack, Two Boilers Inches	24	24	26	26	28	30	30	32	32	34	36	38	38	40	42	44	46
Minimum Height of Stack, Two Boilers Feet	50	50	50	55	55	55	55	55	55	65	65	65	70	70	75	75	75
Size of Steam Opening Inches	5	6	6	6	6	6	6	6	8	8	8	8	8	8	8	8	8
Size of Return Inches	3	3	3	4	4	4	4	4	5	5	5	5	5	6	6	6	6
Size of Safety Valve Inches	1½	1½	2	2	2	2	2	2½	2½	3	3	3	3½	3½	4	4	2–2½
Height of Water-line Inches	55	55	55	58½	58½	58½	61	61	61	66	66	75	75	80	80	85½	85½
Height from Floor to Top of Boiler Inches	65	65	65	71	71	71	77	77	77	83	83	93	93	99	99	105	105

Capacity for Oil, Gas or Stoker—Steam, 2670 to 20,910 sq. ft.; Water, 60% Greater than Steam.

Kewanee Smokeless Portable Type K Boiler



Longitudinal Section



Section Kewanee Smokeless Boiler Showing Portable Type K Setting Plan and Foundation.

Boilers No. 113K to 120K.

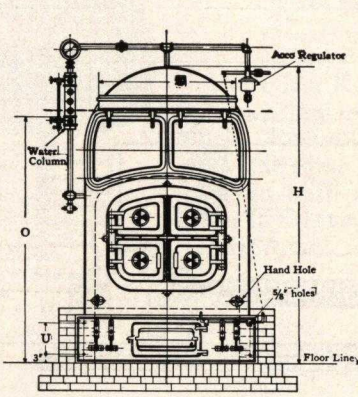
Measurements Smokeless Portable Type K Boilers 113K-120K

Number of Boiler	113K	114K	115K	116K	117K	118K	119K	120K
A—Diameter of Boiler....Inches	54	54	60	60	66	66	72	72
B—Length of Boiler....Ft. In.	17–1	19–7	19–4	21–10	19–10	21–10	19–10	21–10
C—Header to Bridge Wall....Inches	13	14	14	15½	14	15½	16	17
D—Length of Ash-pit....Inches	57	63	63	69	63	69	69	75
E—Length of Grate....Inches	55	61	61	67	61	67	67	73
F—Center to Center Bolts in Ash-pit Front....Inches	54	54	60	60	66	66	72	72
G—Bridge Wall to Rear Wall....Inches	6	6	12	12	12	12	12	12
H—Height of Boiler....Inches	83	83	93	93	99	99	105	105
J—Width of Ash-pit....Inches	49	49	54	54	60	60	66	66
K—Location of Steam Supply....Ft. In.	11–0	11–6	11–10	13–0	12–0	13–0	12–1	13–1
L—Length of Foundation....Inches	94	100	106	112	106	112	112	118
M—Width of Foundation....Inches	75	75	80	80	86	86	92	92
N—Length of Breeching Connection....Inches	46	46	50	50	54	54	68	68
O—Width of Breeching Connection....Inches	10	10	12	12	12	12	13	13
Q—Height of Return....Inches	20	20	23	23	23	23	23	23
R—Depth of Smoke Box....Inches	16	16	18	18	18	18	18	18
S—Location of Safety Valve....Inches	21	30	26	30	30	30	20	34
U—Height of Steam Supply....Inches	85	85	95	95	101	101	107	107
V—Minimum Space Required at Rear....Inches	30	30	33	33	36	36	39	39
W—Height of Water-line....Inches	66	66	75	75	80	80	85½	85½
X—Floor Line to Bottom of Cylinder....Inches	29	29	33	33	33	33	33	33
Z—Height of Ash-pit....Inches	14	14	17	17	17	17	17	17
Outside Surface to be Covered...Sq. Ft.	243	278	311	350	350	384	380	407

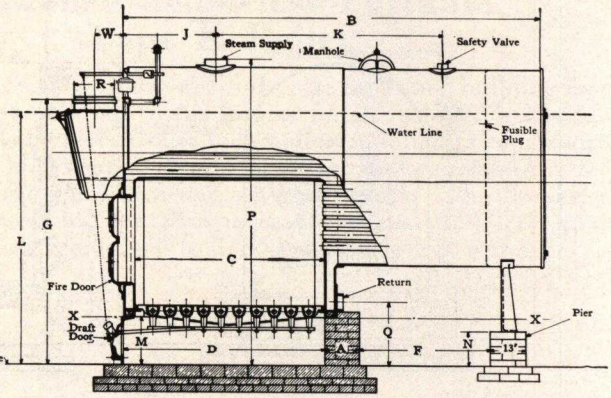
Measurements Smokeless Portable Type K Boilers 104K-112K (Illustrated on Opposite Page)

Number of Boiler	104K	105K	106K	107K	108K	109K	110K	111K	112K
A—Diameter of Boiler....Inches	36	36	36	42	42	42	48	48	48
B—Length of Boiler....Ft. In.	9–11	11–5	12–11	11–2	12–8	14–2	13–8	15–2	16–8
C—Header to Bridge Wall..Inches	7	8	9	9	10	12	10	11	12½
D—Length of Ash-pit....Inches	32	38	44	38	44	50	44	50	56
E—Length of Grate....Inches	31	37	43	37	43	49	43	49	55
F—Height of Return....Inches	19	19	19	19	19	19	19	19	20
G—Height of Supply....Inches	67	67	67	73	73	73	79	79	79
H—Height of Boiler....Inches	65	65	65	71	71	71	77	77	77
J—Width of Ash-pit....Inches	31	31	31	37	37	37	43	43	43
K—Location of Steam Supply....Ft. In.	6–0	7–0	8–0	7–6	8–0	8–9	8–10	9–8	10–4
L—Length of Ash-pit Base..Inches	51	57	63	60	66	72	72	78	84
M—Width of Ash-pit Base..Inches	40	40	40	46	46	46	54	54	54
N—Length of Breeching Connection....Inches	24	24	24	30	30	30	36	36	36
R—Depth of Smoke Box...Inches	16	16	16	16	16	16	16	16	16
S—Location of Safety Valve.Inches	15	18	18	13	12	13	16	18	18
W—Height of Water-line...Inches	55	55	55	58½	58½	58½	61	61	61
T—Thickness of Bridge Wall....Inches	9	9	9	9	9	9	13	13	13
Outside Surface to be Covered....Sq. Ft.	93	102	115	131	148	164	180	199	218
V—Minimum Space Required at Rear....Inches	21	21	21	24	24	24	27	27	27

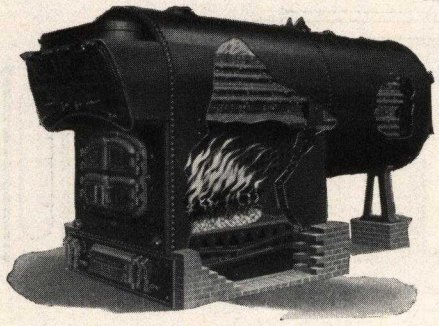
Kewanee Up-Draft Portable Boiler "800" Series



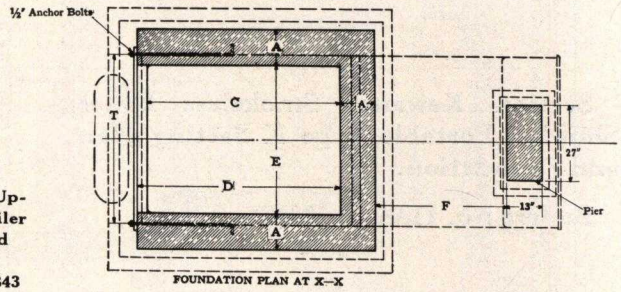
FRONT ELEVATION



LONGITUDINAL SECTION



Section Kewanee Up-Draft Bulldog Boiler Setting Plan and Foundation. Boilers Nos. 832-843



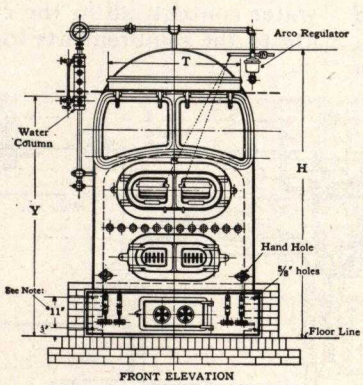
FOUNDATION PLAN AT X–X

Specifications and Setting Measurements

Number of Boiler	832	833	834	835	836	837	838	839	840	841	842	843
Capacity, Steam....Sq. Ft.	7920	8750	8770	10310	12170	14210	16000	17930	20710	24230	30700	35170
Capacity, Water....Sq. Ft.	12670	14000	14030	16500	19470	22740	25600	28690	33140	38770	49120	56270
Width of Boiler....Inches	48	48	54	54	60	60	66	66	72	72	78	78
Area of Grate....Sq. Ft.	19.9	21.7	20.8	22.9	25.2	25.2	30.5	32.9	36.3	38.9	42.6	45.5
Heating Surface....Sq. Ft.	566	625	666	763	910	1018	1143	1281	1479	1731	2193	2512
Width of Firebox....Inches	42	42	48	48	53	53	59	59	65	65	71	71
Height of Firebox....Inches	44	44	49	49	49	49	52	52	54½	54½	55	55
Size of Steam Opening....Inches	8	8	8	8	8	8	8	8	8	8	10	10
Size of Return Opening....Inches	5	5	5	5	6	6	6	6	6	6	6	6
Size of Safety Valve Opening....Inches	3	3	3	3	3½	3½	4	4	2–2½	2–3	2–3	2–3
Outside Surface to Cover....Sq. Ft.	175	190	195	210	235	255	260	285	300	335	370	410
Diameter of Breeching, One Boiler....Inches	26	26	28	28	30	32	34	34	36	36	40	42
Diameter of Stack, One Boiler....Inches	24	24	26	26	28	30	32	32	34	34	38	40
Height of Stack, One Boiler....Feet	60	60	65	65	65	70	70	70	80	90	90	100
Diameter of Breeching, Two Boilers....Inches	38	38	40	40	44	46	50	50	52	52	56	56
Diameter of Stack, Two Boilers....Inches	34	34	36	36	40	42	46	46	48	48	54	54
Height of Stack, Two Boilers....Feet	70	70	75	75	75	80	80	80	90	100	100	110
Approximate Weight....Pounds	11400	12200	13000	14400	16000	17000	19800	21500	23600	25700	29400	32000
A—Thickness of Foundation Walls....Inches	9	9	9	9	13	13	13	13	13	13	13	13
B—Length of Boiler....Ft. In.	11–5	12–5	10–10	12–1	12–7	13–10	13–0	14–3	13–11	15–8	16–8	18–7
C—Length of Firebox....Inches	68	74	62	68	68	74	74	80	80	86	86	92
D—Length of Ash-pit....Inches	71	77	65	71	72	78	78	84	84	90	90	96
E—Width of Ash-pit....Inches	43	43	49	49	53	53	59	59	65	65	71	71
F—Ash-pit Wall to Pier....Inches	40	45	38	48	48	60	48	57	51	66	78	94
G—Height of Breeching Connection....Inches	82	82	91	91	94	94	99	99	104	104	105½	105½
H—Height of Boiler....Inches	92½	92½	101	101	106	106	112½	112½	118	118	119½	119½
J—Location of Steam Supply....Inches	33	35½	25	33	33½	36	30	32	32½	41½	41½	39½
K—Location of Safety Valve....Inches	74	81½	76½	78	81½	85	88	96	89	92	106	129
L—Height of Water-line....Inches	78	78	87	87	91	91	96	96	101	101	102½	102½
M—Height of Ash-pit....Inches	14	14	14	14	17	17	17	17	17	17	17	17
N—Height of Pier....Inches	10½	10½	13½	13½	12	12	11½	11½	11	11	12½	12½
O—Height of Water Column....Inches	76	76	85	85	88	88	93	93	98	98	99½	99½
P—Height of Steam Supply....Inches	95	95	103	103	108	108	115	115	120	120	122	122
Q—Height of Return....Inches	20	20	20	20	23	23	23	23	23	23	23	23
R—Width of Breeching Connection....Inches	14	14	14	14	15	15	17	17	19	19	21	21
S—Length of Breeching Connection....Inches	38	38	42	42	50	50	54	54	54	54	60	60
T—Ctr. to Ctr. Bolts in Ash-pit Front....Inches	48	48	54	54	60	60	66	66	72	72	78	78
U—Ctr. to Ctr. Bolts in Ash-pit Front....Inches	8	8	8	8	11	11	11	11	11	11	11	11
W—Boiler to Center of Breeching....Inches	10	10	10	10	10½	10½	11½	11½	12½	12½	13½	13½
Size of Steam Supply....Inches	8	8	8	8	8	8	8	8	8	8	10	10
Size of Return....Inches	5	5	5	5	6	6	6	6	6	6	6	6
Size of Safety Valve....Inches	3	3	3	3	3½	3½	4	4	2–2½	2–3	2–3	2–3
*Number of Common Brick	380	400	425	450	725	755	775	805	835	865	915	960
Outside Surface to Cover....Sq. Ft.	175	190	195	210	235	255	260	285	300	335	370	410

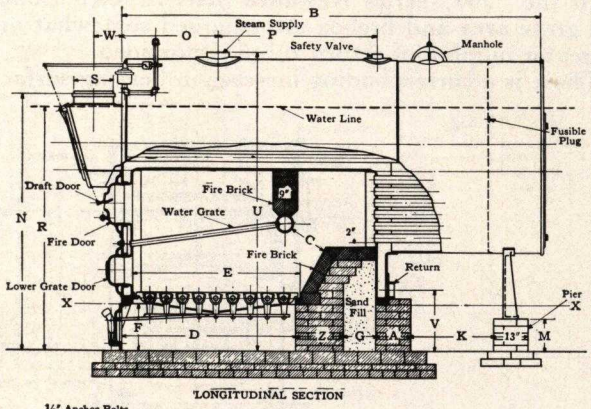
*Foundation not included. **Capacity for Oil, Gas or Stoker—Steam, 9620 to 42700 sq. ft.; Water, 60% Greater than Steam.**

Kewanee Smokeless Portable Boiler "900" Series

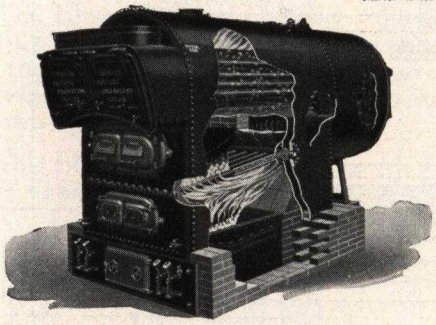


FRONT ELEVATION

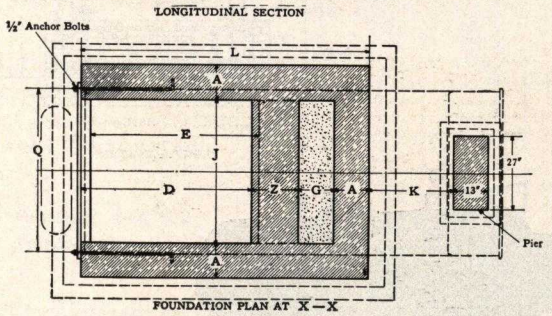
NOTE:-
This Dimension 8" on Nos. 932 to 935 incl.



LONGITUDINAL SECTION



Section Kewanee Smokeless Bulldog Boiler Setting Plan and Foundation. Boilers Nos. 932-943



FOUNDATION PLAN AT X—X

Specifications and Setting Measurements

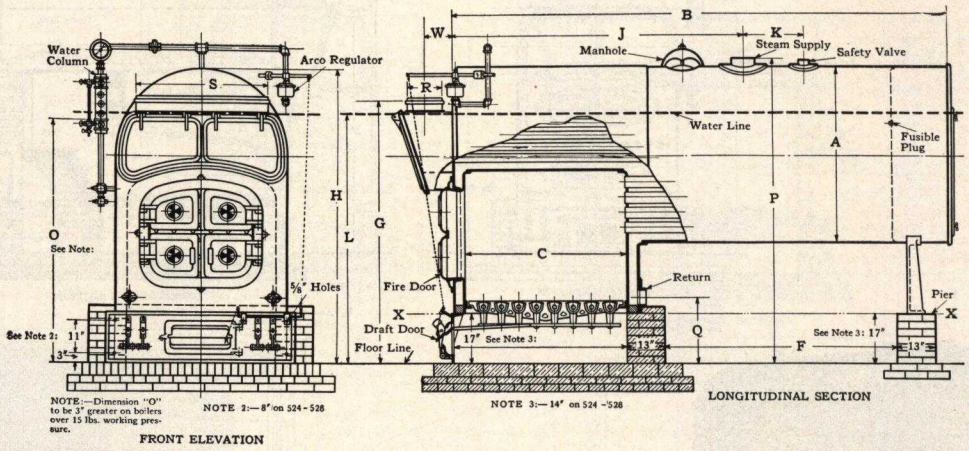
Number of Boiler	932	933	934	935	936	937	938	939	940	941	942	943
Capacity, Steam....Sq. Ft.	7560	8840	10070	10810	12940	15260	17110	18300	20870	21760	29010	36790
Capacity, Water....Sq. Ft.	12100	14140	16110	17300	20700	24420	27380	29280	33390	34820	46420	58860
Width of Boiler....Inches	48	48	54	54	60	60	66	66	72	72	78	78
Area of Upper Grate....Sq. Ft.	15	16.5	18.13	19.48	21.03	23.25	25.86	27.09	29.90	31.71	38.59	41.56
Heating Surface....Sq. Ft.	592	644	719	772	924	1090	1222	1307	1491	1554	2072	2628
Approximate Weight....Pounds	12100	12700	14600	15400	18000	19700	21900	22900	25800	26700	30700	35000
Length of Firebox....Inches	78	84	84	90	90	96	96	102	102	108	114	120
Width of Firebox....Inches	42	42	48	48	53	53	59	59	65	65	71	71
Height of Firebox....Inches	44	44	49	49	49	49	52	52	54½	54½	55	55
Size of Steam Opening....Inches	8	8	8	8	8	8	8	8	8	8	10	10
Size of Return Opening....Inches	5	5	5	5	6	6	6	6	6	6	6	6
Size of Safety Valve Opening....Inches	2½	3	3	3	3½	3½	4	4	2–2½	2–2½	2–3	2–3
Outside Surface to Cover....Sq. Ft.	180	190	205	220	240	270	280	295	305	320	365	435
Diameter of Breeching, One Boiler....Inches	26	26	28	28	30	32	34	34	36	36	40	42
Diameter of Stack, One Boiler....Inches	24	24	26	26	28	30	32	32	34	34	38	40
Minimum Height of Stack, One Boiler...Feet	60	60	65	65	65	70	70	70	80	90	90	100
Diameter of Breeching, Two Boilers....Inches	38	38	40	40	44	46	50	50	52	52	56	56
Diameter of Stack, Two Boilers....Inches	34	34	36	36	40	42	46	46	48	48	54	54
Minimum Height of Stack, Two Boilers...Feet	70	70	75	75	75	80	80	80	90	100	100	110
A—Thickness of Foundation Walls....Inches	9	9	9	9	13	13	13	13	13	13	13	13
B—Length of Boiler....Ft. In.	11–8	12–6½	11–8½	12–5½	13–0	14–9	13–11	14–9	14–4	14–11	16–7	19–9
C—Header to Bridgewall....Inches	12½	14	14	15	15	16	16	17	17	18	18	19
D—Length of Ash-pit....Inches	56	62	62	68	63	69	69	75	75	75	81	87
E—Length of Grate....Inches	55	61	61	67	61	67	67	73	73	73	79	85
F—Height of Ash-pit....Inches	14	14	14	14	17	17	17	17	17	17	17	17
G—Bridgewall to Rear Wall....Inches	12	12	12	12	13	13	13	13	13	19	19	19
H—Height of Boiler....Inches	92½	92½	101	101	106	106	112½	112½	118	118	119½	119½
J—Width of Ash-pit....Inches	43	43	49	49	53	53	59	59	65	65	71	71
K—Rear Wall to Pier....Inches	32	36	28	31	33	49	36	41	34	34	48	81
L—Length of Foundation....Inches	90	96	96	102	107	113	113	119	119	125	131	137
M—Height of Pier....Inches	10½	10½	13½	13½	12	12	11½	11½	11	11	12½	12½
N—Height of Breeching Connection....Inches	82	82	91	91	94	94	99	99	104	104	105½	105½
O—Location of Steam Supply....Inches	25	26	36	35	35½	33½	30	32	32	30½	32	42
P—Location of Safety Valve....Inches	55	59½	50	57	56½	65½	68	71	57½	66	69½	66
Q—Bolts Centers Ash-pit Front....Inches	48	48	54	54	60	60	66	66	72	72	78	78
R—Height of Water-line....Inches	78	78	87	87	91	91	96	96	101	101	102½	102½
S—Width of Smoke Neck....Inches	14	14	14	14	15	15	17	17	19	19	21	21
T—Length of Smoke Neck....Inches	38	38	42	42	50	50	54	54	54	54	60	60
U—Height of Steam Supply....Inches	95	95	103	103	108	108	115	115	120	120	122	122
V—Height of Return....Inches	20	20	20	20	23	23	23	23	23	23	23	23
W—Boiler to Center of Breeching....Inches	10	10	10	10	10½	10½	11½	11½	12½	12½	13½	13½
Y—Height of Water Column....Inches	76	76	85	85	88	88	93	93	98	98	99½	99½
Z—Thickness of Bridgewall....Inches	13	13	13	13	18	18	18	18	18	18	18	18
*Number of Common Brick	625	650	1050	1075	1250	1300	1325	1375	1400	1475	1500	1575
Number of Fire Brick	155	155	185	185	190	190	220	220	230	230	290	290

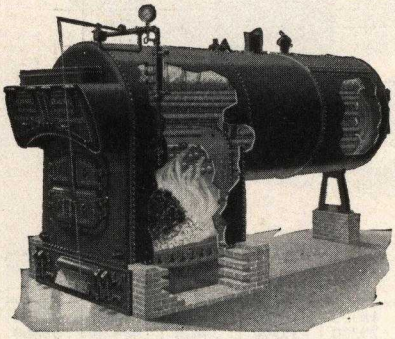
*Foundation not included. **Capacity for Oil, Gas or Stoker—Steam, 10060 to 44670 sq. ft.; Water, 60% Greater than Steam.**

Kewanee Up-Draft Portable Boiler "500" Series

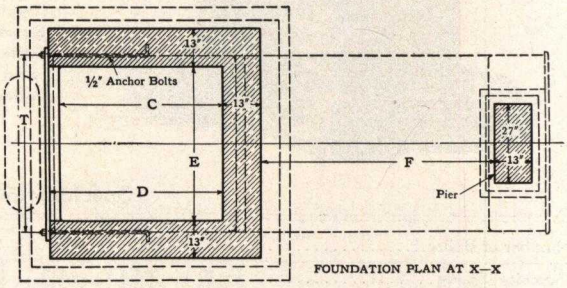
In the "500" series Kewanee Steel-Riveted Boilers the grate area and firebox are enlarged somewhat and a greater number of return tubes is provided.

There is a corresponding increase in heating surface, steam space, disengaging area, furnace volume and water content, all in the correct ratio and proportionate to the requirements for definite service conditions.





Section Kewanee Boiler Showing Portable Type Setting Plan and Foundation. Boilers Nos. 524-544.

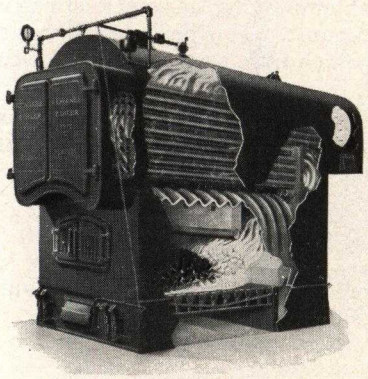


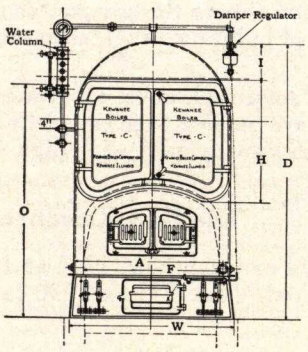
Specifications and Setting Measurements

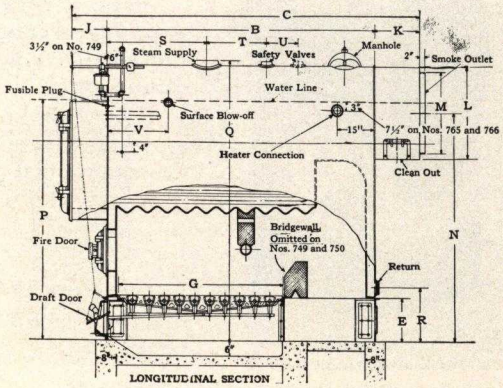
	524	526	528	530	532	534	536	538	540	542	544
Number of Boiler											
Capacity, Steam Sq. Ft.	7060	8770	10160	10310	13720	16380	18340	19460	21840	25540	28880
Capacity, Water Sq. Ft.	11300	14030	16260	16500	21950	26210	29340	31140	34940	40860	46210
Heating Surface Sq. Ft.	600	670	760	862	980	1170	1310	1390	1560	1824	2063
Area of Grate Sq. Ft.	18.2	20.8	22.7	22.9	27.2	30.5	32.8	36.1	38.8	39.5	42.5
Height of Firebox Inches	44	49	49	49	49	52	52	54½	54½	55	55
Diameter of Breeching Inches	24	26	26	28	28	30	32	34	34	36	36
Diameter of Stack Inches	22	24	24	26	26	28	30	32	32	34	34
Minimum Height of Stack Feet	60	65	70	80	80	80	90	80	95	85	95
Diameter of Breeching, Two Boilers Inches	34	38	38	40	40	44	46	50	50	52	52
Diameter of Stack, Two Boilers Inches	30	34	34	36	36	40	42	46	46	48	48
Min. Height of Stack, Two Boilers Feet	70	75	80	90	90	90	100	90	105	95	105
Size of Steam Opening Inches	6	8	8	8	8	8	8	8	10	10	10
Size of Return Inches	4	5	5	6	6	6	6	6	6	6	6
Size of Safety Valve Inches	2½	3	3	3	3½	4	4	2–2½	2–3	2–3	2–3
Diam. and Length Direct Tubes Inches	3x78	4x65	4x73	4x87	4x97	4x90	4x103	4x84	4x97	4x102	4x119
Diam. and Length Return Tubes Inches	3x143	3x130	3x144	3x153	3x175	3x168	3x187	3x168	3x187	3x186	3x209
Dis. Required to Open Flue Doors Inches	28	32	32	32	32	35	35	37	37	40	40
Approximate Weight Pounds	11160	12560	13550	15000	16640	20040	21500	23250	24870	26640	28870
A—Diameter of Boiler Inches	54	60	60	60	60	66	66	72	72	78	78
B—Length of Boiler Ft. In.	13–5	12–5	13–7	14–4	16–2	15–9	17–4	15–11	17–6	17–5	19–4
C—Length of Grate Inches	62	62	68	62	74	74	80	80	86	80	86
D—Length of Ash-pit Inches	66	66	72	66	78	78	84	84	90	84	90
E—Width of Ash-pit Inches	42	48	48	53	53	59	59	65	65	71	71
F—Ash-pit Wall to Pier Ft. In.	5–8	4–6	5–0	6–6	7–0	6–6	7–6	6–0	7–0	7–10	9–0
G—Height of Breeching Connection Inches	80	88	88	90	90	93	93	100	100	101	101
H—Height of Boiler Inches	89	98	98	101	101	107	107	113	113	115	115
J—Location of Steam Supply Ft. In.	8–6	8–8	9–2	8–11	10–5	10–4	11–2	10–7	11–9	11–3	10–11
K—Location of Safety Valve Inches	16	16	18	21	23	26	34	16	16	31	46
L—Height of Water-line Inches	76	83	83	87	87	90	90	96	96	97	97
O—Height of Water Column Inches	73½	81	81	84	84	87½	87½	93½	93½	94	94
P—Height of Steam Supply Inches	90	99	99	103	103	109	109	115	115	117	117
Q—Height of Return Inches	19	20	20	23	23	23	23	23	23	23	23
R—Width of Breeching Connection Inches	10	12½	12½	12½	12½	15	15	17	17	17	17
S—Length of Breeching Connection Inches	42	46	46	46	46	50	50	54	54	60	60
T—Ctr. to Ctr. Bolts in Ash-pit Front In.	48	54	54	60	60	66	66	72	72	78	78
W—Boiler to Center of Breeching Inches	8	9¼	9¼	9¼	9¼	10½	10½	11½	11½	11½	11½
*Number of Common Brick	540	560	590	710	770	790	820	850	880	885	930
Outside Surface to Cover Sq. Ft.	185	190	220	250	280	290	310	315	345	385	425

*Foundations not included. **Capacity for Oil, Gas or Stoker—Steam, 10110 to 35070 sq. ft.; Water, 60% Greater than Steam.**

Kewanee Type C Electric-Weld Boiler

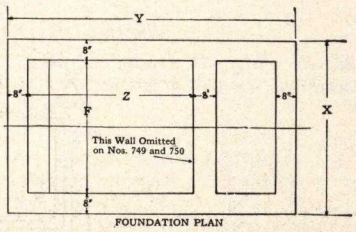






The Kewanee Type C Boiler exemplifies the latest in expert thought. It is built of steel plate, seven simple shapes, solidly welded into a homogeneous unit by the well proven electric metallic-arc-puddling process same as has been used on welded details of Kewanee Boilers for years, and it has the Patent Corrugated Crown Sheet.

This Boiler is built to the A. S. M. E. Code for low pressure heating boilers. It is a **real** boiler in construction—a scientifically designed steam generator.



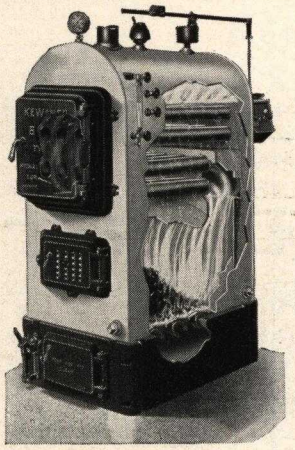
FOUNDATION PLAN

Specifications—Nos. 749-770 for Bituminous Coal—2749-2770 for Anthracite Coal

Number of Boilers	749 2749	750 2750	751 2751	752 2752	753 2753	754 2754	755 2755	756 2756	757 2757	758 2758	759 2759	760 2760	761 2761	762 2762	763 2763	764 2764	765 2765	766 2766	767 2767	768 2768	769 2769	770 2770
Code	Cabby	Cabdo	Cabem	Cabgy	Cabop	Cabur	Cacen	Cacip	Cache	Cacor	Cacus	Cadan	Cadep	Cadgo	Cadir	Cados	Cadut	Cafis	Cafot	Cagar	Cahas	Cahet
Capacity, Steam . Sq. Ft.	2300	2690	3250	3630	4060	4550	5250	5950	6470	7000	8280	9610	10850	12110	14300	16380	18660	20750	22520	25530	28780	33070
Heating Surface . . Sq. Ft.	164	192	232	262	290	325	375	425	462	498	591	686	775	865	1025	1170	1333	1482	1608	1824	2056	2362
Area of Grate . . . . Sq. Ft.	9.1	10.3	11.0	11.6	12.4	13.9	15.5	18.0	19.7	21.5	22.4	24.3	24.7	26.9	27.6	30.1	32.9	35.6	36.0	38.9	42.1	45.2
Diameter of Stack . . . In.	18	20	20	20	22	22	22	24	24	26	26	28	30	30	32	32	34	34	38	38	40	40
Min. Ht. of Stack . . . Ft.	45	50	50	55	55	55	60	60	60	65	65	65	70	70	70	70	80	90	90	90	100	100
Dia. Stack, 2 Boilers . In.	26	28	28	28	31	31	31	34	34	36	36	40	42	42	46	46	48	48	52	54	54	54
Min. Height of Stack, Two Boilers . . . . . Ft.	55	60	60	65	65	65	70	70	70	75	75	75	80	80	80	80	90	100	100	100	110	110
Size of Steam Opening . . . . . In.	6	6	6	6	6	6	6	8	8	8	8	8	8	8	8	8	8	8	8	10	10	10
Size of Ret. Opening . In.	4	4	4	4	4	4	4	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6
Size of Safety Valve Opening . . . . . In.	2	2	2	2	2	2	2½	2½	3	3	3	3½	3½	3½	3½	4	4	2–2½	2–2½	2–3	2–3	2–3
A—Width of Boiler . . In.	36	36	36	36	42	42	42	48	48	48	54	54	60	60	66	66	72	72	78	78	84	84
B—Lgth. Boiler . Ft. In.	4–2	4–8	5–8	6–4	5–10½	6–6½	7–6	6–1	6–7	7–1	7–5½	8–7	8–0½	8–11	9–7	10–10	9–10½	10–11	10–10	12–2½	10–11	12–5
C—Overall Length of Boiler . . . . . Ft. In.	5–10	6–4	7–4	8–0	7–10½	8–6½	9–6	8–3	8–9	9–3	9–8½	10–10	10–4½	11–3	11–11	13–2	12–8½	13–9	13–8	15–0½	13–9	15–3
D—Ov'all Ht. Boiler . In.	77½	77½	77½	77½	83½	83½	83½	97	97	97	99	99	108½	108½	112	112	118	118	122	122	135	135
E—Ht. Ash-pit Base . In.	14	14	14	14	14	14	14	14	14	14	14	14	17	17	17	17	17	17	17	17	21	21
F—Width of Grates and Ash-pit . . . . . In.	30	30	30	30	36	36	36	42	42	42	47½	47½	52½	52½	58½	58½	64	64	70	70	76	76
G—Lgth. of Grates . In.	43	49	56	56	50	56	62	68	74	68	74	68	74	68	74	74	80	74	80	80	86	
H—Height of Front Smokebox . . . . . In.	34	34	34	34	34	34	34	42	42	42	42	42	48	48	48	48	51	51	52	52	61	61
I—Top Fr. Smoke-box to Top of Boiler . . In.	10	10	10	10	13	13	13	16	16	16	16	16	16	16	18	18	17	17	19	19	21	21
J—Depth of Front Smokebox . . . . . In.	9	9	9	9	10	10	10	11	11	11	12	12	12	12	12	12	14	14	14	14	14	14
K—Depth of Rear Smokebox . . . . . In.	11	11	11	11	14	14	14	15	15	15	15	15	16	16	16	16	20	20	20	20	20	20
L—Height of Rear Smokebox . . . . . In.	26	26	26	26	29	29	29	35½	35½	35½	35	35	36	36	39	39	43	43	45½	45½	49½	49½
M—Diameter of Smoke Outlet . . . . . In.	20	22	22	22	24	24	24	26	26	26	28	28	32	32	34	34	36	36	40	40	42	42
N—Height Smoke Outlet above Floor . . . In.	64½	64½	64½	64½	69	69	69	79	79	79	81½	81½	90½	90½	93	93	96	96	99	99	110	110
O—Ht. Water Col . . In.	67	67	67	67	70	70	70	80	80	80	82	82	91	91	92½	92½	98	98	100	100	111½	111½
P—Ht. Water Line . In.	69	69	69	69	72	72	72	82	82	82	85	85	94	94	95	95	101	101	103	103	114	114
Q—Ht. Steam Supply . In	79½	79½	79½	79½	85½	85½	85½	99	99	99	101	101	110½	110½	114	114	120	120	124	124	137	137
R—Ht. of Return . . . In.	18	18	18	18	18	18	18	19	19	19	19	19	22	22	22	22	22	22	22	22	26	26
S—Location of Steam Supply . . . . . In.	10½	14	14	16	14	16	18	16	18	21	18	21	18	21	18	21	21	21	21	21	21	24
T—Location of First Safety Valve . . . . . In.	8½	10	10	10	10	10	11	12	13	14	13	14	13	14	13	14	14	14	14	14	14	15
U—Location of Second Safety Valve . . . . . In.																		10	10	11	11	12
V—Location of Surface Blow-off . . . . . In.	12	12	12	12	12	12	12	12	12	12	18	24	24	24	24	24	24	24	24	24	24	24
W—Width of Base . . In.	38½	38½	38½	38½	44½	44½	44½	50½	50½	50½	56½	56½	63	63	69	69	75	75	81	81	87½	87½
X—Width of Found . In.	46	46	46	46	52	52	52	58	58	58	63½	63½	68½	68½	74½	74½	80	80	86	86	92	92
Y—Length Found . . In.	59	65	77	85	80	88	99	82	88	94	99	112	106	115	123	138	127	140	138	154	139	157
Z—Lgth of Ash-pit . In.	43	49	56	56	50	56	62	62	68	74	68	74	68	74	68	74	74	80	74	80	80	86
Outside Surface to Cover . . . . . Sq. Ft	62	68	80	89	93	102	115	116	124	132	145	165	172	187	210	234	231	252	265	294	294	328
No. of Oil Burn Boiler . .	1749	1750	1751	1752	1753	1754	1755	1756	1757	1758	1759	1760	1761	1762	1763	1764	1765	1766	1767	1768	1769	1770
Capacity, Steam . Sq. Ft.	2790	3260	3940	4450	4930	5520	6370	7220	7850	85001	0040	11670	13180	14700	17420	19880	22650	25200	27300	31000	34900	40200

Boiler Series 1749-1770 for Oil, Gas or Stoker.

Rated Capacity for Water Boiler is 60% Greater than Steam.



With or Without Jacket

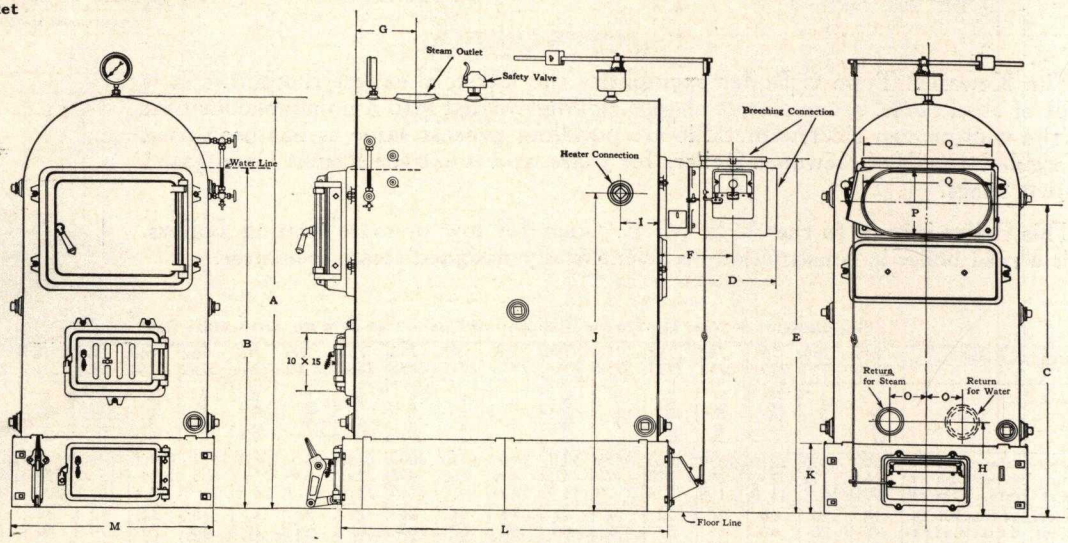
Kewanee Residence Type R Boiler

Type R Steel Boiler is a later Kewanee development employing characteristically sound steel construction in the compacted style of heating unit. It is designed to serve the smaller kind of building—such as garage, store, school, church, apartment, office or residence.

Every kind of solid fuel, coke, all grades of soft or hard coals and their briquette or powdered forms are burned with excellent success, also any liquid fuel oils, and natural or commercial gas can be used with high efficiency in Kewanee Type R Boilers.

The New Kewanee Round Steel Boiler

For burning Oil or Gas. Nos. 1735 and 1736 carry 540 and 680 sq. ft. of radiation.
For burning Coal. Nos. 735 and 736 carry 410 and 550 sq. ft. of radiation.



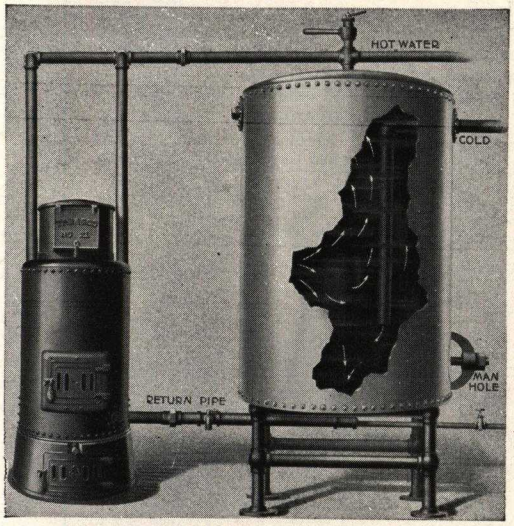
Data and Measurements—Type "R" Numbers 740 to 748—For Burning Bituminous Coal

Number of Boiler	740	741	742	743	745	746	747	748
Code	Resam	Resay	Rescu	Reset	Resew	Resin	Resol	Rest
Rated Capacity, Steam ..... Sq. Ft.	430	590	790	1000	1350	1600	1780	1960
Rated Capacity, Water ..... Sq. Ft.	690	940	1260	1600	2160	2560	2850	3140
Heating Surface ..... Sq. Ft.	44	54	63	73	101	114	127	140
Grate Area ..... Sq. Ft.	3.0	3.9	4.8	5.6	6.7	7.8	8.8	9.9
Width of Boiler ..... Inches	31	31	31	31	31	31	31	31
Length of Boiler ..... Inches	27½	33½	39½	45½	45½	51½	57½	63½
Size of Return Inlet added for Water ..... Inches	2½	2½	2½	2½	4	4	4	4
Size of Safety Valve Opening .... Inches	1	1	1¼	1¼	1½	1½	1½	2
Size of Steam or Water Outlet ... Inches	3	3	4	4	5	6	6	6
Size of Steam Return Inlet ..... Inches	2½	2½	2½	2½	3	3	3	3
*A—Overall Height, Floor to Top of Shell ..... Inches	59½	59½	59½	59½	70¼	70¼	70¼	70¼
B—Height of Water-line ..... Inches	48	48	48	48	58½	58½	58½	58½
Chimney—Diameter ..... Inches	12	12	12	12	16	16	16	16
Chimney—Height ..... Feet	35	35	35	35	40	40	40	40
Breeching Diameter ..... Inches	14	14	14	14	18	18	18	18
Breeching Connection Size, PxQ ..... Inches	8½x17	8½x17	8½x17	8½x17	11x22	11x22	11x22	11x22
C—Height of End Breeching Connection Center ..... Inches	49½	49½	49½	49½	54	54	54	54
D—Back of Boiler to End Breeching Connection ..... Inches	17½	17½	17½	17½	20	20	20	20
E—Height of Breeching Connection ..... Inches	55¾	55¾	55¾	55¾	61½	61½	61½	61½
F—Back of Boiler to Top Breeching Connection Center. Inches	11¼	11¼	11¼	11¼	12½	12½	12½	12½
G—Steam or Water Outlet Center to Boiler Front ..... Inches	11	11	11	11	12	12	12	12
H—Height of Return Inlet Centers ..... Inches	15¼	15¼	15¼	15¼	16	16	16	16
Heater Connection Size ..... Inches	2	2	2	2	2	2	2	2
O—Return Inlet Offset from Boiler Center ..... Inches	5	5	5	5	6	6	6	6
I—Heater Connection Center from Back of Boiler ..... Inches	6½	6½	6½	6½	6½	6½	6½	6½
J—Heater Connection Height from Floor ..... Inches	43¾	43¾	43¾	43¾	54¼	54¼	54¼	54¼
K—Height of Base ..... Inches	12	12	12	12	12	12	12	12
L—Length of Base ..... Inches	31½	37½	43½	49½	49½	55½	61½	67½
M—Width of Base ..... Inches	30	30	30	30	34	34	34	34
Outside Surface to Cover, Unjacketed ..... Sq. Ft.	33	38	43	48	60	66	71	77
Approximate Weight ..... Pounds	1700	1900	2150	2360	2800	3050	3300	3550

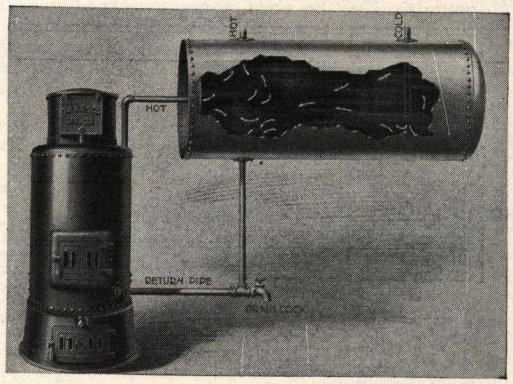
*For Jacketed Boiler, add 1½-inch to overall height. For Water, add word to code; example: Ship today one RESCU WATER complete.
Oil, Gas or Stoker Nos. 1740-1748—Capacity, Steam, 450 to 2380 sq. ft.; for Anthracite, Nos. 2740-2748—Capacity, Steam, 430 to 1960 sq. ft.

Kewanee Tabasco Water Heaters

Tabasco Riveted Steel Water Heaters are economical and simple to operate with any kind of fuel. They are safe for high water pressures now carried in most cities. Riveted steel construction insures against repairs from cracking or breaking. Brass clean-out plugs or handholes furnished on all Tabasco Heaters both magazine feed and surface burning type. Equipped with the Tabasco improved rocking grate—a sectional, clinker-cutting, dumping grate. Maximum working pressure 60 pounds Standard, 100 pounds Extra Heavy.



Type R Heater. Type S Tank



Magazine Feed Tabasco Heater with Tank

Extra Heavy Heaters—Type R

No.	Capacity Gallons	Total Height Ft.	Total Height In.	Diameter Fire Pot Inches	Sizes Flow and Return Inches	A'pr'x.Ship.Wt.Lbs. Surface Burner	A'pr'x.Ship.Wt.Lbs. Magazine Feed
150	150	5	1	12	Two-1¼	650	710
200	200	4	7	16	Two-1½	730	830
300	300	5	3	20	Two-2	1020	1170
400	400	6	3	20	Two-2	1180	1350
500	500	5	10	25	Two-2½	1410	1600
600	600	6	4	25	Two-2½	1550	1750
700	700	7	1	25	Two-2½	1710	1900

Extra Heavy Tabasco Heaters with Vertical Tanks—Tanks and Stands Type S

Size In.	Size Ft.	Capacity Gallons	Total Height Tank and Stand 7-ft.	Total Height Tank and Stand 2-in.	Weight Pounds Tank	Weight Pounds Tank Stand
36	5	265	7		1000	160
42	5	360	7	3	1300	180
48	5	470	7	4	1500	200
54	5	590	7	5	2000	220
60	5	730	7	6	2400	250
60	5½	800	8	0	2500	250
60	6	875	8	6	2600	250

Tabasco Hot Water Heating Boilers

The Tabasco Riveted Steel Hot Water Heating Boiler is built the same as the Tabasco Water Heater. It serves its full rated capacity in the bungalow, cottage, garage, or other building requiring a small heating plant.

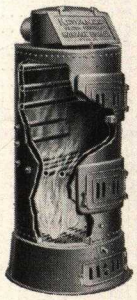
Specifications for Water Heaters and Hot Water Heating Boilers

Heater No.	Water Heating Capacity Gallons per Hour	Size of Heater Inches	Total Height Inches	Sizes Flow and Return Each Inches	Weight, Pounds Magazine Feed	Weight, Pounds Surface Burner	Equivalent Diameter Smoke Connection Inches	Diameter Grate Inches	Water Radiation Capacity Sq. Ft.
17	130	17x32	57	Two-1¼	650	600	6	12½	200
18	150	17x36	61	Two-1¼	710	650	6	12½	250
21	200	21x30	55	Two-1½	830	730	7	15	300
22	250	21x36	62	Two-1½	890	790	7	15	350
25	300	25x37	63	Two-2	1130	990	8¼	19	430
26	350	25x43	69	Two-2	1200	1050	8¼	19	500
27	400	25x49	75	Two-2	1300	1130	8¼	19	550
30	500	30x43	70	Two-2½	1600	1410	8¼	24	600
31	600	30x49	76	Two-2½	1750	1550	8¼	24	700
32	700	30x58	85	Two-2½	1900	1710	8¼	24	800

All above ratings are based on raising temperature of water 50 degrees in one hour. Heaters No. 21 and above have four 2-inch brass clean-out plugs. Maximum working pressure 60 pounds.

Kewanee Water Heating Garbage Burners

Kewanee Water Heating Garbage Burners are built of riveted steel for a working pressure of 125 pounds per square inch, to withstand any city water pressure without cracking or bursting. They eliminate unpleasant features of accumulated garbage in such buildings as apartments, clubs, sanitariums, hotels, restaurants, save the expense of its removal, and in producing hot water by incineration cut the fuel bill of an ordinary heater in half. The operation is very simple. A small fire is started on the lower grates, and the garbage thrown into the upper chamber in any quantity; even when filled, the garbage is dried to a combustible condition in a short time by means of the patented By-Pass and burns without odor, leaving only a small amount of ash. These burners will produce the best results when hot water storage tank attached has a capacity of 50 per cent greater than the hourly heating capacity of the burner.

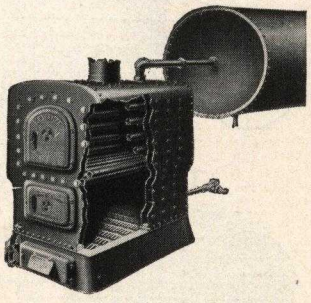


Type A

Kewanee Water Heating Garbage Burner—Type A—Specifications

Catalog Number	30	31	32	33
Capacity, gallons per hour, 50 degrees raise	200	300	400	600
Capacity, garbage chamber, one charge—Bushels	1	2	3	4
Height over all—Inches	62	68	68	68
Diameter of floor space required—Inches	22	25	30	36
Height to bottom of front garbage door—Inches	33	37	37	39
Dimensions of garbage door—Inches	7x8	7x8	7x8	9x12
Dimensions of coal fire doors—Inches	7x8	7x8	7x8	9x12
Diameter of coal or lower grates—Inches	12	16	20	24
Size, flow and return flanges, two each—Inches	1½	2	2	2
Diameter, smoke pipe—Inches	6	8	8	8½
Outside surface to cover—Sq. Ft.	13	19	23	28
Approximate shipping weight—Pounds	600	800	1000	1500

Above ratings all based on raising temperature of water 50 degrees in one hour.



Type H

Catalog Number	Type D 34	35	36	37	38	39	40	Type H 41	42	43	44	45
Cap., gal. per hour, 50 degrees raise	500	600	800	1000	1200	1500	1800	1200	1500	1800	2200	2600
Cap., garbage chamber, one charge bu.	2	3	4	5	7	9	12	6	8	9	11	12
Height over all—Inches	57	57	57	57	57	57	57	65	65	65	65	65
Dimensions of floor space required—Inches	29x29	29x35	35x35	35x41	35x47	41x53	41x59	36x38	38x42	38x48	38x54	38x60
Dimensions over all—Inches	26x26	26x32	32x32	32x38	32x44	38x50	38x56	32x38	38x38	38x44	38x50	38x56
Height to bottom of garbage door—Inches	32	32	31	31	31	31	31	37	37	37	37	37
Dimensions of garbage door—Inches	14x16	14x16	16x16	16x16	16x16	16x16	16x16	16x16	16x16	16x16	16x16	16x16
Dimensions of coal or fire door—Inches	14x10	14x10	16x10	16x10	16x10	16x10	16x10	16x8	16x8	16x8	16x8	16x8
Dimensions of lower or coal grates—Inches	18x18	18x24	24x24	24x30	24x36	30x42	30x48	24x24	24x30	24x36	24x42	24x48
Size, flow and ret'n flanges, one each, In.	2	2	2½	2½	2½	3	3	3	3	4	4	4
Diameter of smoke pipe—Inches	9	9	10	10	10	12	12	10	10	10	12	12
Outside surface to cover—Sq. Ft.	29	34	42	47	52	62	67	53	58	64	70	76
Approximate shipping weight—Pounds	1550	1750	2100	2300	2500	3000	3300	2800	3100	3400	3700	4000

Above ratings all based on raising temperature of water in storage tank 50 degrees in one hour.



Type D

Kewanee Steel Tanks

Standard Water Storage Tanks are tested to 100 pounds hydrostatic pressure. For use where water working pressure does not exceed 65 pounds. Can be used either horizontally or vertically. Manholes, handholes, and coils furnished only when ordered. Extra Heavy Tanks are tested to 150 pounds hydrostatic pressure, for use where working pressure does not exceed 100 pounds. Prices and specifications on application for tanks of any size for every purpose and pressure, both plain and galvanized.

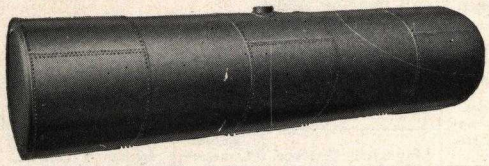


Standard Water Storage Tanks

Standard and Extra Heavy				Standard Approx. Shipping Weight Pounds	Extra Heavy Approx. Shipping Weight Pounds	Standard and Extra Heavy				Standard Approx. Shipping Weight Pounds	Extra Heavy Approx. Shipping Weight Pounds
Capacity Gallons	Size	Openings Inches	Size Coil Inches			Capacity Gallons	Size	Openings Inches	Size Coil Inches		
66	20x4	1½	4 Pipes 1 inch	270	.....	525	36x10	2	4 Pipes 1½ in.	1030	1380
85	20x5	1½	4 Pipes 1 inch	310	.....	430	42x 6	2	4 Pipes 1½ in.	890	1140
100	24x4	1½	4 Pipes 1¼ in.	330	.....	500	42x 7	2	4 Pipes 1½ in.	980	1260
120	24x5	1½	4 Pipes 1¼ in.	380	390	575	42x 8	2	4 Pipes 1½ in.	1070	1400
140	24x6	1½	4 Pipes 1¼ in.	440	450	720	42x10	2	4 Pipes 1½ in.	1250	1660
150	30x4	2	4 Pipes 1¼ in.	430	.....	865	42x12	2	4 Pipes 1½ in.	1430	1910
180	30x5	2	4 Pipes 1¼ in.	500	520	1000	42x14	2	4 Pipes 1½ in.	1620	2180
220	30x6	2	4 Pipes 1¼ in.	560	590	750	48x 8	3	.....	.....	1690
250	30x7	2	4 Pipes 1¼ in.	630	660	940	48x10	3	.....	.....	1960
295	30x8	2	4 Pipes 1¼ in.	700	720	1130	48x12	3	.....	.....	2250
315	36x6	2	4 Pipes 1½ in.	700	920	1300	48x14	3	.....	.....	2570
365	36x7	2	4 Pipes 1½ in.	780	1030	1500	48x16	3	.....	.....	2860
420	36x8	2	4 Pipes 1½ in.	870	1160	1700	48x18	3	.....	.....	3150

Kewanee Pressure and Storage Tanks

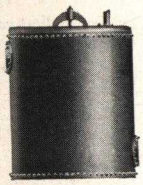
These tanks can be built for all purposes and pressures, and of any size. In making inquiry for prices and specifications, always give the pressure to be carried, purpose for which tank is to be used, and number of gallons capacity. Tanks listed below are for pressures up to 100 pounds.



Kewanee Gravel Basins and Blow-Off Receivers

Diameter Inches	Height Inches	Thickness of Shell Inches	Thickness of Head Inches	Capacity Gallons	Weight Pounds
20	24	¼	5/16	34	360
24	24	¼	5/16	47	400
30	24	¼	5/16	73	500
30	30	¼	5/16	90	550
36	30	¼	5/16	130	680
36	36	¼	5/16	160	740
36	48	¼	5/16	210	85

Flanges of any size located to suit purchaser.



Size Tanks In. Ft.	Thickness of Shell Inches	Thickness of Head Inches	Weight Pounds	Capacity Gallons	Size Tanks In. Ft.	Thickness of Shell Inches	Thickness of Head Inches	Weight Pounds	Capacity Gallons	Size Tanks In. Ft.	Thickness of Shell Inches	Thickness of Head Inches	Weight Pounds	Capacity Gallons
48x 8	¼	7/16	1700	750	54x16	5/16	7/16	4300	1890	72x24	5/16	½	8500	5090
48x10	¼	7/16	2000	940	54x20	5/16	7/16	5200	2360	72x28	5/16	½	9700	5940
48x12	¼	7/16	2300	1130	54x24	5/16	7/16	6000	2840	72x32	5/16	½	10800	6780
48x14	¼	7/16	2600	1300	60x20	5/16	7/16	5900	2920	72x36	5/16	½	11900	7630
48x16	¼	7/16	2900	1500	60x24	5/16	7/16	6900	3470	84x28	5/16	½	11800	8070
48x18	¼	7/16	3200	1700	60x28	5/16	7/16	7800	4090	84x32	5/16	½	13200	9220
48x20	¼	7/16	3500	1880	60x32	5/16	7/16	8700	4670	84x36	5/16	½	14500	10370
48x24	¼	7/16	4100	2260	60x36	5/16	7/16	9800	5260	96x30	3/8	5/8	17200	11250
54x14	5/16	7/16	3900	1660	72x20	5/16	½	7400	4240	96x36	3/8	5/8	20000	13500

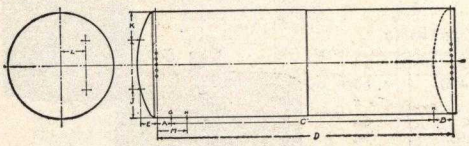
Kewanee Pneumatic Tanks

Built for 75 pounds water working pressure. Horizontal seam is lap joint, double riveted, all rivet holes reamed to full size. Openings in shell are reinforced and threaded. Prices for any size plain or galvanized on application. We have a complete stock of plain tanks on hand.



Size	Approx. Weight Pounds	Size	Approx. Weight Pounds	Size	Approx. Weight Pounds
24x 5	390	36x 6	730	42x12	1880
24x 6	440	36x 8	890	42x14	2150
24x10	660	36x10	1050		
		36x12	1200	48x10	1930
30x 6	590	36x14	1380	48x14	2540
30x 8	720			48x16	2830
30x10	850	42x 8	1370	48x20	3440
		42x10	1630	48x24	4020

Tappings for Horizontal Pneumatic Tanks

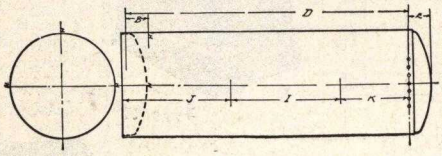


All sizes in inches.

We are prepared to furnish all sizes of tanks as shown at right for vertical installation. Tanks over 6 feet are tapped for 2 gauge glasses.

Size	A	B	C	D	E	G	H	I	J	K	L	M
24x 5	5½	6	46	57½	4½	1	1	15¼	4⅜	4⅜	6	....
24x 6	5½	6	58	69½	4½	1	1	15¼	4⅜	4⅜	6	....
24x10	5½	6	104	115½	4½	1	1	15¼	4⅜	4⅜	6	....
30x 6	5½	6	58	69½	5½	1	1	15¼	7⅜	7⅜	6	....
30x 8	5½	6	80	91½	5½	1	1	15¼	7⅜	7⅜	6	....
30x10	5½	6	104	115½	5½	1	1	15¼	7⅜	7⅜	6	....
36x 6	5½	6	58	69½	6½	1¼	1¼	15¼	10⅜	10⅜	8	10
36x 8	5½	6	80	91½	6½	1¼	1¼	15¼	10⅜	10⅜	8	10
36x10	5½	6	104	115½	6½	1¼	1¼	15¼	10⅜	10⅜	8	10
36x12	5½	6	128	139½	6½	1¼	1¼	15¼	10⅜	10⅜	8	10
36x14	5½	6	149	160½	6½	1¼	1¼	15¼	10⅜	10⅜	8	10
42x 8	6	6	71½	79½	93	7	1½	1½	19¼	11⅜	11⅜	10	11¾
42x10	6	6	71½	101½	115	7	1½	1½	19¼	11⅜	11⅜	10	11¾
42x12	6	6	71½	125½	139	7	1½	1½	19¼	11⅜	11⅜	10	11¾
42x14	6	6	71½	149½	163	7	1½	1½	19¼	11⅜	11⅜	10	11¾
48x10	6	6	71½	101½	115	7½	2	2	25¼	11⅜	11⅜	12	11¾
48x14	6	6	71½	149½	163	7½	2	2	25¼	11⅜	11⅜	12	11¾
48x16	6	6	71½	173½	187	7½	2	2	25¼	11⅜	11⅜	12	11¾
48x20	6	6	71½	218½	232	7½	2	2	25¼	11⅜	11⅜	12	11¾
48x24	6	6	71½	266½	280	7½	2	2	25¼	11⅜	11⅜	12	11¾

Tappings for Vertical Pneumatic Tanks



Size	B	D	E	H	I	J	K
24x5	6	57½	4½	1	19¼	23¾	15¾
24x6	6	69½	4½	1	25¼	29½	15¾
30x6	6	69½	5½	1	25¼	29½	15¾
36x6	6	69½	5½	1	25¼	29½	15¾

All sizes in inches.

Kewanee Air Receivers

Shell seams are lap joints, double riveted; circular seams single riveted. Heads dished to a radius equal to diameter of shell. Tested to 165 pounds hydrostatic pressure. Safe and tight under 110 pounds working pressure. Receivers larger than 36 inches in diameter are regularly made with manhole.

Prices for any size or capacity on application.

Size	Capacity Cubic Feet	Shell Thickness Inches	Heads Thickness Inches	Inlet and Outlet Inches	Safety Valve Inches	Drain	Floor to Outlet Ft.	Floor to Outlet In.	Floor to Inlet Inches	Weight Pounds
20x 5	11	5/16	¼	1½	1	½	3	9	15	310
24x 6	19	5/16	¼—5/16	2	1	½	4	9	15	430
30x 5	24	¼	5/16	2½	1¼	1	3	9	15	660
30x 8	39	¼	5/16	2½	1¼	1	6	6	18	935
36x 6	42	¼	5/16—3/8	2½	1¼	1	4	6	18	1140
42x 8	77	¼	5/16—3/8	3	1½	1	6		18	1860
42x12	115	¼	5/16—3/8	3	1½	1	9	6	24	2480
48x 8	100	5/16	3/8—7/16	3	1½	1	6		18	2165
54x14	223	5/16	3/8—½	6	2½	1	11	6	24	4420

For A. S. M. E. specifications bottom is convex instead of concave as shown.



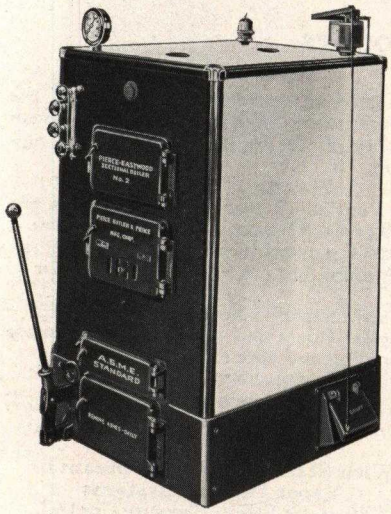
PIERCE BUTLER & PIERCE MANUFACTURING CORPORATION

General Offices—282 James Street, SYRACUSE, NEW YORK

Branches in Principal Cities

The Proper size and type Boiler for any heating requirement. We also manufacture Low and High Pressure Steel Boilers, Ames Engines, Valves, Thermometers and Gauges.

The Pierce-Eastwood Jacketed Sectional Boilers



Features

Flaming Orange and Black Steel Jacket.

Air Cell Insulation attached to Jacket.

Scientifically designed flues.

Large Steam Liberating Space.

Automatic Draft Regulation.

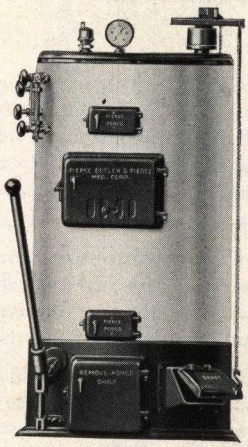
Side Draft Door.

Large Fuel Capacity.

Two-way Smoke Hood.
Flat Rocking and Shaking Grates.
Both Water and Steam Boilers completely equipped.
Low Chimney requirements.
Burns Hard or Soft Coal, Coke, Oil and Gas.
Tapped for Indirect Water Heaters.

STEAM		STEAM AND WATER					WATER	
Boiler No.	Coal Guaranteed Load Sq. Ft. E.D.R.	Grate Area Sq. Ft.	Fuel Capacity Pounds	Length Inches Overall	No. and Size Outlets	No. and Size Inlets	Coal Guaranteed Load Sq. Ft. E.D.R.	Boiler No.
No. 1 Series—17-inch Grate								
S112	245	1.51	131½	37	1–3"	2–2½"	390	W112
S122	375	2.22	187	43	2–3"	2–2½"	600	W122
S132	505	2.93	244	49	2–3"	2–2½"	805	W132
S142	635	3.64	300½	55	2–3"	2–2½"	1015	W142
S152	765	4.35	356½	61	2–3"	2–2½"	1225	W152
Water line—Steam, 41 inches. Height overall, 50 inches. Width, 25¾ inches.								
No. 2 Series—19-inch Grate								
S204	455	2.57	200	43	2–3"	2–3"	750	W204
S205	585	3.36	265	49	2–3"	2–3"	975	W205
S206	715	4.15	330	55	2–3"	2–3"	1200	W206
S207	845	4.94	395	61	2–3"	2–3"	1450	W207
S208	975	5.72	460	67	2–3"	2–3"	1675	W208
Water line—Steam, 42⅞ inches. Height overall, 54 inches. Width, 31⅞ inches.								
No. 3 Series—24-inch Grate								
S305	925	4.16	385	51	2–3"	2–4"	1530	W305
S306	1175	5.16	475	57	2–3"	2–4"	1950	W306
S307	1450	6.16	565	63	3–3"	2–4"	2375	W307
S308	1700	7.16	655	69	3–3"	2–4"	2800	W308
S309	2000	8.16	745	75	4–3"	2–4"	3225	W309
S310	2225	9.16	835	81	4–3"	2–4"	3650	W310
Water line—Steam, 52½ inches. Height overall, 63 inches. Width, 38½ inches.								

The Pierce-Pebco Jacketed Round Boilers



Features

Flaming Orange and Black Steel Jacket.

Air Cell Insulation attached to Jacket.

Three-piece push nipple construction.

Large amount of prime heating surface.

Deep Firepot.

Low Water Line.

Large Steam Liberation space.

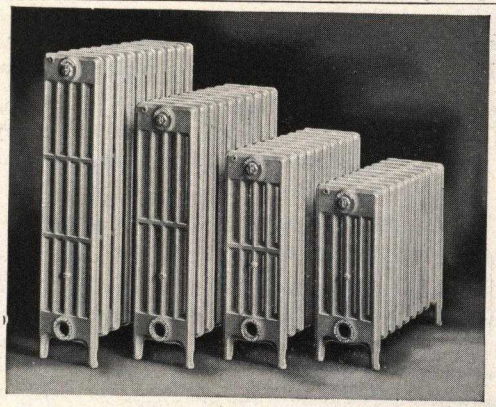
Low Stack Temperature.

Flat Rocking and Shaking Grates.

Scientifically proportioned, practical and efficient.

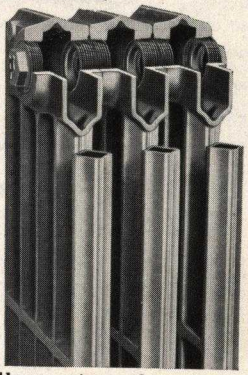
Base, Crownsheet Firepot and Dome

STEAM		STEAM AND WATER					WATER	
Boiler No.	Coal Guaranteed Load Sq. Ft. E.D.R.	Grate Area Sq. Ft.	Fuel Capacity Pounds	Height Inches	No. and Size Outlets	No. and Size Inlets	Coal Guaranteed Load Sq. Ft. E.D.R.	Boiler No.
18S	275	1.77	162	45	2–2½"	2–2½"	440	18W
20S	365	2.18	199	45	2–3"	2–2½"	585	20W
22S	465	2.64	242	46	2–3"	2–2½"	745	22W



A Group of Five-Tube Pierce Eastwood Radiators

Pierce Eastwood Screw Nipple Radiation is so designed that it combines appearance with unusual efficiency. It is generously proportioned and is made in 3-4-5-6 and 7 Tube widths, and all heights. Due to its Screw Nipple Construction, it is easy to keep clean and has unusual appeal to the home owner because of its attractive appearance.



Illustrating the Screw Nipple Construction of all Pierce Radiators

THE PEERLESS HEATER COMPANY — BOYERTOWN, PA.

DIVISION OF THE EASTERN FOUNDRY COMPANY

Representatives in

Baltimore, Md.	Chicago, Illinois	Los Angeles, Cal.	Nashville, Tenn.	Pittsburgh, Pa.
Boston, Mass.	Cincinnati, Ohio	Louisville, Ky.	New Orleans, La.	Reading, Pa.
Buffalo, N. Y.	Cleveland, Ohio	Memphis, Tenn.	New York, N. Y.	St. Louis, Mo.
Chattanooga, Tenn.	Detroit, Mich.	Milwaukee, Wis.	Philadelphia, Pa.	San Francisco, Cal.

Canadian Representatives in the Larger Cities

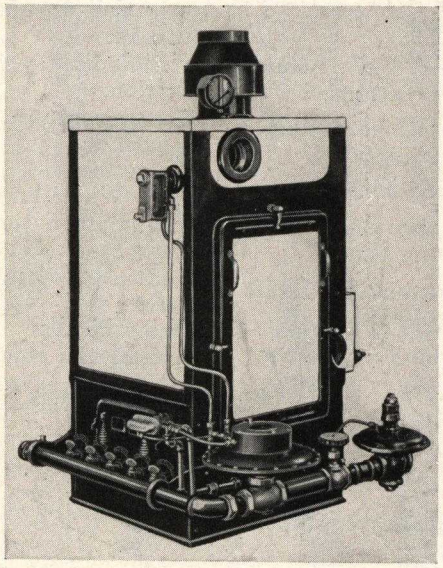
Peerless Super Section Gas Fired Boilers

Available in three Series sizes, these new Peerless SUPER SECTION GAS FIRED BOILERS for water and steam meet every practical heating requirement from the smallest home to the largest public building.

Masters of heating efficiency, burning gas—the clean fuel—noiselessly and automatically, they are the last word in carefree, wasteless heating.

Scrubbing and scouring every available inch of the heating surface in the long and staggered fire travel, hot gases arising from the flame deliver to the water in the Peerless Super Section every possible heat unit from the fuel. The water, broken up into fine and rapidly circulating streams, quickly absorbs this heat and delivers it with minimum loss to connecting pipes and radiators.

An important and exclusive Peerless feature are the easily opened clean-out doors, giving ready access to the flues from both ends of the boiler. Impurities deposited on section surfaces may be quickly brushed away and laboratory efficiency of the boiler maintained in actual operation.



No. 3 Series Peerless Super Section Gas Fired Boiler for Water A. G. A. Approved

A. G. A. Approved

Tested in accordance with codes of the American Gas Association and American Society of Heating and Ventilating Engineers.

Standard Equipment

All Peerless Super Section Boilers are fitted with accessories as follows:

Metal Insulated Jacket (choice of 6 colors).
Automatic Gas Valve with Electric Control.
Transformer—Automatic Safety Pilot.
Regular Pilots and Pilot Cock (necessary piping and copper tubing for both).
Labeled Shut-Off Cock.
Gas Pressure Regulator.
Drain Cock—Draft Hoods.
Clean-out Brush.

With Steam Boilers for Steam or Vapor Heating Systems

Automatic Steam Pressure Control.
Throttling Valve
Low Water Safety Cut-Off.
Pressure Relief Valve.
Steam Gauge and Syphon.
Water Column with Gauge and Tri-Cocks.

With Water Boilers for Hot Water Heating Systems

Automatic Water Temperature Control.
Combination Altitude Gauge and Thermometer.

Room Thermostat is not furnished as standard equipment. If Minneapolis Room Thermostat is used it must be Series 10.

These Peerless Boilers set new high standards of heating convenience. They are completely automatic in operation. Every contingency of practical service has been provided for. Nothing is left to care.

Simply turn a valve and light the pilot when winter comes—then forget heating worries till spring.

Gas controlled valves guard every operation of these new Peerless Gas Boilers. The slightest change in steam pressure or water temperature is instantly reflected in valves which regulate the flame. The gas cannot be turned on until the safety pilot is lighted. It is automatically cut off if the pilot light goes out. If the water in the steam boiler falls below the safe level, the gas is automatically turned off.

Gas is delivered to the burners only as it is used—only as the demand for heat requires it. Thermostatic or pressure controls absolutely guard every operation of these boilers.

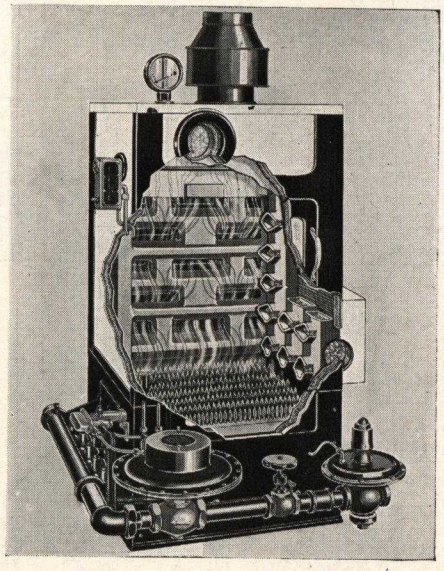
A. G. A. Ratings

No. 25 Series—Steam 265 feet to 940 feet.
Water 425 feet to 1500 feet.

No. 3 Series—Steam 760 feet to 1750 feet.
Water 1220 feet to 2800 feet.

No. 5 Series—Steam 1730 feet to 15,260 feet.
Water 2770 feet to 24,420 feet.

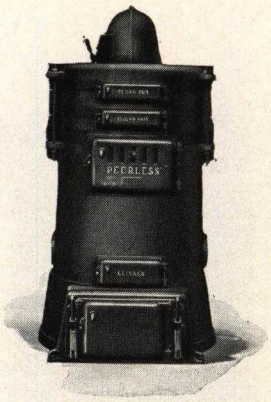
Write for complete information, data and prices.



Note the Staggered Flue Travel and Full Water Tube Construction in This Cut-Away View

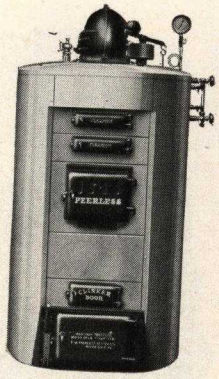
Peerless Round Boilers

Jacketed and Unjacketed



The Peerless Round Boiler Scientifically Designed Efficient Economical

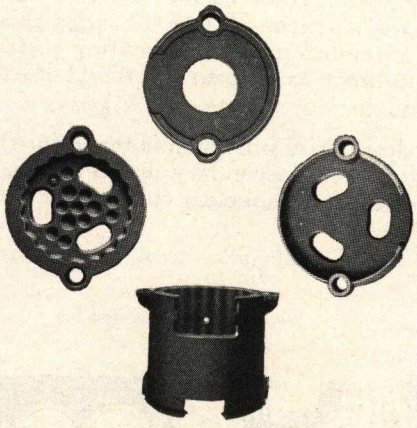
The Peerless Round Boiler Complete with Jacket of Heavy Gauge Steel Finished in Red Enamel



These Peerless Round Boilers are designed to assure maximum heat absorption from the fuel consumed, and consequent economy of operation.

Corrugated fire pots and crown sheets present almost twice the prime heating area of a plain surface.

The Staggered fire travel above the crown sheet forces the hot gases into contact with every inch of water-backed iron.



Round Boiler Sections

To these highly efficient and economical Peerless Round Boilers have been applied jackets of lasting beauty. No longer must the modern trend toward cleanly and colorful basements be dependent on a less efficient product.

These trim and pleasing jackets are made of extra heavy gauge steel, enameled both sides, and practically impervious to rust. Insulated with a heavy rock wool blanket no heat can be lost.

Peerless Round Steam Boilers

Ratings and Dimensions

Boiler No.	Commercial Rating Steam	Grate Area Sq. Ft.	Outlets Inches	Inlets Inches	Water Line Inches	Chimney Sizes	
						Height Feet	Dimensions Inches
Group 1 Consists of Base, Fire-Pot, Crown Sheet and Steam Dome							
1194-S	500	1.97	1–4	2–3	43	30	8x 8
1204-S	600	1.97	1–4	2–3	46 7/8	30	8x 8
1234-S	1000	2.89	1–4	2–3	47 3/8	35	8x12
1264-S	1400	3.80	1–4	2–4	49	35	12x12
Group 2 Consists of Base, Fire-Pot, Crown Sheet, Intermediate Section and Steam Dome							
2195-S	600	1.97	1–4	2–3	47 1/4	35	8x 8
2205-S	700	1.97	1–4	2–3	51 1/8	35	8x 8
2235-S	1100	2.89	1–4	2–3	52 1/8	40	12x12
2265-S	1500	3.80	1–4	2–4	54 1/4	40	12x12
Group 3 Consists of Base, Fire-Pot, Crown Sheet, Two Intermediate Sections and Steam Dome							
3196-S	700	1.97	1–4	2–3	51 1/2	35	8x 8
3206-S	800	1.97	1–4	2–3	55 3/8	35	8x 8
3236-S	1200	2.89	1–4	2–3	56 7/8	40	12x12
3266-S	1600	3.80	1–4	2–4	59 1/2	45	12x12

Peerless Round Water Boilers

Ratings and Dimensions

Boiler No.	Commercial Rating Water	Grate Area Sq. Ft.	Outlets Inches	Inlets Inches	Chimney Sizes	
					Height Feet	Dimensions Inches
Group 1 Consists of Base, Fire-Pot, Crown Sheet and Water Dome						
1194-W	800	1.97	2–3	2–3	30	8x 8
1204-W	960	1.97	2–3	2–3	30	8x 8
1234-W	1600	2.89	2–3	2–3	35	8x12
1264-W	2240	3.80	2–4	2–4	35	12x12
Group 2 Consists of Base, Fire-Pot, Crown Sheet, Intermediate Section and Water Dome						
2195-W	960	1.97	2–3	2–3	35	8x 8
2205-W	1120	1.97	2–3	2–3	35	8x 8
2235-W	1760	2.89	2–3	2–3	40	12x12
2265-W	2400	3.80	2–4	2–4	40	12x12
Group 3 Consists of Base, Fire-Pot, Crown Sheet, Two Intermediate Sections and Water Dome						
3196-W	1120	1.97	2–3	2–3	35	8x 8
3206-W	1280	1.97	2–3	2–3	35	8x 8
3236-W	1920	2.89	2–3	2–3	40	12x12
3266-W	2560	3.80	2–4	2–4	45	12x12

Boilers No. 1204, 2205, 1234 and 2235 may be had with Jackets and are designated as Nos. 6, 7, 8 or 9-S or W.

See Following Page

Peerless Square Sectional Boilers

Jacketed and Unjacketed



No. 618—Peerless Steam Boiler

All Peerless Sectional Boilers are of the true water tube type, recognized by the best engineering authorities to be the most modern and efficient design.

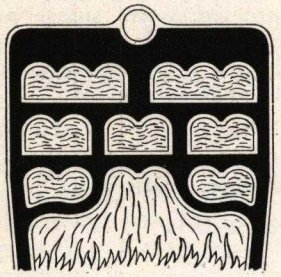
The patented "S" arm construction adds as much prime heating surface as if the Crown Sheets were twice actual size, and as well results in far more rapid circulation and consequent higher efficiency.

The corrugated crown sheets also present to the radiant heat of the fire nearly twice as much prime heating surface as a plain flat area. In the 30 and 40 series this corrugated construction is extended to the flue heating surfaces, thereby increasing the indirect as well as the direct heating surfaces to the maximum.

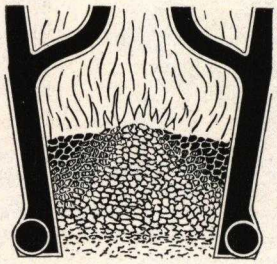
In the Smokeless Series provision is made for the induction of the proper amount of secondary air to the rear of the fire bed to assure complete smokeless combustion when burning bituminous coal.



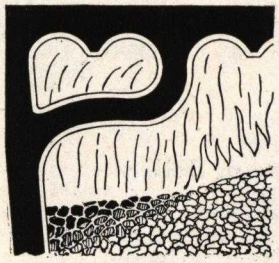
No. 624—Peerless Steam Boiler



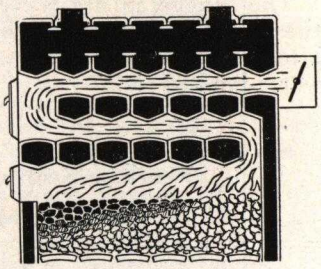
Corrugated crown-sheet and flue areas present nearly twice the usual heating surface to flame and hot gases.



The "V" shaped fire-pot eliminates "dead edges" and increases heating area in direct contact with the fire.



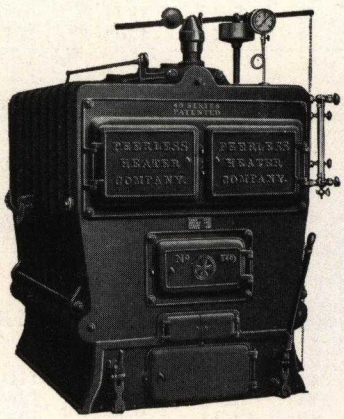
Patented "S" arms (an exclusive Peerless feature) insure quick heating and rapid circulation of water in the boiler.



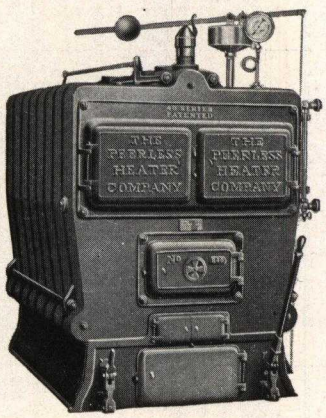
Three-way fire travel, the entire length of the boiler, extracts maximum heat energy from the fuel.



No. 830—Peerless Steam Boiler. For larger homes or small buildings.



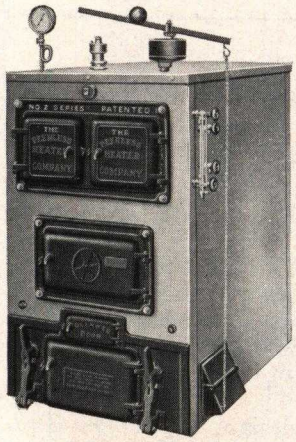
Peerless Smokeless Boilers. For burning soft coal. Complies with all smoke ordinances.



No. 840 Peerless Steam Boiler. For the larger buildings. Reliable and economical.

Peerless Square Sectional Boilers

Jacketed and Unjacketed

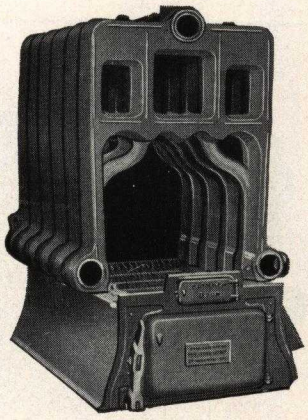


The Peerless Sectional Jacketed Boiler—Lasting Beauty with Economy

To the time tested and proven principles of construction in these Peerless Sectional Boilers have been added jackets of heavily insulated steel to meet modern demands for beauty.

These extra heavy gauge steel jackets are accurately groove fitted and dust tight. Of simple construction, having no separate edge or corner pieces, they are easy to assemble and are held in place with but a few screws.

A heavy blanket of rock wool, having several times the insulating properties of other types of insulation, reduces heat loss and waste to an absolute minimum.



18 and 24 Series—Interior View. Note "S" Arm Construction and Corrugated Crown Sheets

Ratings and Dimensions—Peerless Sectional Boilers

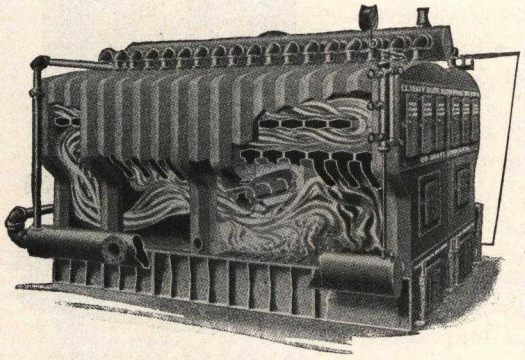
Boiler Number		Commercial Rating		Total Length Inches Sections Only	Grate Area Sq. Ft.	Water Line	Outlets Inches	Inlets Inches	Chimney Sizes	
Unjacketed	Jacketed	Steam	Water						Height Feet	Dimension Inches
18 Series										
318S or W	3-S-1 or W	550	880	19½	1.80	36¾	2–3	2–3	30	8x 8
418S or W	4-S-1 or W	780	1250	26¼	2.55	36¾	2–3	2–3	35	8x 8
518S or W	5-S-1 or W	1000	1600	33	3.30	36¾	2–3	2–3	35	8x12
618S or W	6-S-1 or W	1250	2000	39¾	4.05	36¾	2–3	2–3	35	8x12
718S or W	7-S-1 or W	1500	2400	46½	4.80	36¾	3–3	3–3	40	8x12
24 Series										
424S or W	4-S-2 or W	1000	1600	25½	3.45	42	2–3	2–3	35	8x12
524S or W	5-S-2 or W	1300	2080	32	4.40	42	2–3	2–3	35	12x12
624S or W	6-S-2 or W	1600	2560	38½	5.35	42	2–3	2–3	40	12x12
724S or W	7-S-2 or W	1900	3040	45	6.30	42	3–3	3–3	40	12x12
824S or W	8-S-2 or W	2200	3520	51½	7.25	42	3–3	3–3	45	12x16
30 Series										
530S or W	5-S-3 or W	1800	2880	31¾	5.40	48	2–4	2–4	40	12x12
630S or W	6-S-3 or W	2200	3520	38¼	6.60	48	2–4	2–4	40	12x16
730S or W	7-S-3 or W	2600	4160	44¾	7.80	48	2–4	2–4	40	16x16
830S or W	8-S-3 or W	3000	4800	51¼	9.00	48	3–4	3–4	45	16x16
930S or W	9-S-3 or W	3400	5540	58	10.20	48	3–4	3–4	50	16x20
1030S or W	10-S-3 or W	3800	6080	64½	11.40	48	3–4	3–4	55	16x20
40 Series										
640S or W	6-S-4 or W	4200	6720	45¼	10.60	51	2–5	2–4	50	16x20
740S or W	7-S-4 or W	5000	8000	52⅞	12.55	51	2–5	2–4	55	20x20
840S or W	8-S-4 or W	5800	9280	60½	14.50	51	3–5	3–4	55	20x20
940S or W	9-S-4 or W	6600	10560	68⅛	16.45	51	3–5	3–4	60	20x24
1040S or W	10-S-4 or W	7400	11840	75¾	18.40	51	3–5	3–4	65	20x24
1140S or W	11-S-4 or W	8200	13120	83⅜	20.35	51	4–5	4–4	70	20x24
1240S or W	12-S-4 or W	9000	14400	91	22.30	51	4–5	4–4	70	24x24
1340S or W	13-S-4 or W	9800	15680	98⅝	24.25	51	4–5	4–4	75	24x28
1440S or W	14-S-4 or W	10600	16960	106¼	22.30	51	4–5	4–4	75	28x28
1540S or W	15-S-4 or W	11400	18240	113⅞	24.25	51	5–5	5–4	80	30x30
1640S or W	16-S-4 or W	12200	19520	121½	24.25	51	5–5	5–4	80	32x32

Note—Smokeless Boilers are designated by affixing the letter "S" to the boiler number—viz: S-1030-S.

FRANK PROX COMPANY TERRE HAUTE, IND.

1201 South First Street

PROX



The B-60 Series—Water Line 55 inches

Prox Economic Boiler

B-60 Series

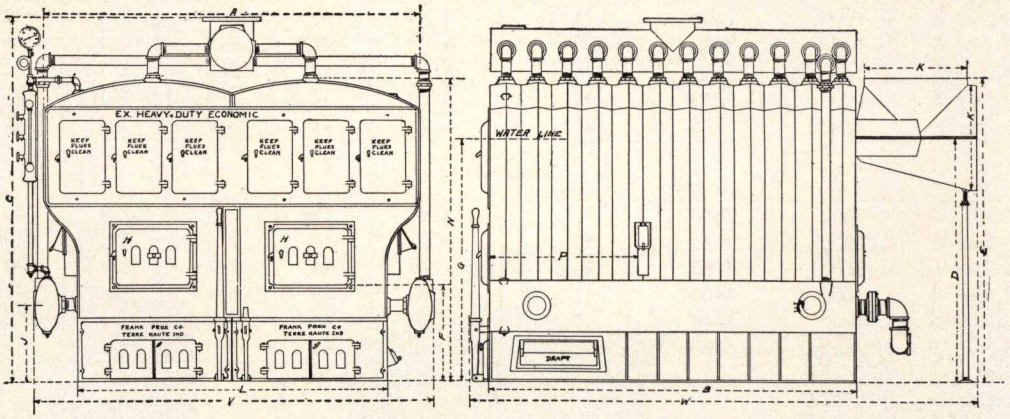
An extra heavy duty boiler that gives satisfactory service in heating large schools, apartments, public buildings, theatres and churches. The capacity of the B-60 boilers in battery is almost unlimited. Is of the Prox twin section, header design, assuring continuous service at all times. In case of accident to any section, headers can be plugged and boiler continued in use until repairs arrive. Any section can be removed and replaced without disturbing the balance of boiler. Automatic Coal Stokers are very efficient in Prox Boilers.

Burns Coal, Gas or Oil Efficiently.

Smokeless type is single grate updraft design.

STEAM		Water Line (Maximum, 62 inches / Minimum, 55 inches)				STEAM AND WATER		WATER					
Smokeless Boiler Number	Regular Boiler Number	Commercial Rating Steam	Guaranteed Rating Steam*	Flows (inches)	Returns (inches)	Chimney Sizes for One Boiler	Grate Area (sq. ft.)	Flows (inches)	Returns (inches)	Smokeless Boiler Number	Regular Boiler Number	Commercial Rating Water	Guaranteed Rating Water*
						Feet							
B60-S10S	B60-S10	13500	8000	1– 8	1–3	24x24x 75	24.50	1– 8	4–4	B60-W10S	B60-W10	22275	13200
B60-S11S	B60-S11	14800	8800	1– 8	1–3	24x24x 80	24.50	1– 8	4–4	B60-W11S	B60-W11	24420	14520
B60-S12S	B60-S12	15900	9600	1– 8	1–3	24x28x 80	24.50	1– 8	4–4	B60-W12S	B60-W12	26235	15840
B60-S13S	B60-S13	16900	10400	1– 8	1–3	24x28x 85	24.50	1– 8	4–4	B60-W13S	B60-W13	27885	17160
B60-S14S	B60-S14	17900	11200	2– 8	1–3	28x28x 80	27.60	2– 8	4–4	B60-W14S	B60-W14	29535	18480
B60-S15S	B60-S15	18900	12000	2– 8	1–3	28x28x 85	27.60	2– 8	4–4	B60-W15S	B60-W15	30185	19800
B60-S16S	B60-S16	20400	12800	2– 8	1–4	30x30x 80	27.60	2– 8	4–4	B60-W16S	B60-W16	33660	21120
B60-S17S	B60-S17	21600	13600	2– 8	1–4	30x30x 80	27.60	2– 8	4–4	B60-W17S	B60-W17	35640	22440
B60-S18S	B60-S18	23300	14400	2– 8	1–4	30x30x 85	30.60	2– 8	4–4	B60-W18S	B60-W18	38445	23760
B60-S19S	B60-S19	24500	15200	2– 8	1–4	30x30x 90	30.60	2– 8	4–4	B60-W19S	B60-W19	40425	25080
B60-S20S	B60-S20	25800	16000	2– 8	1–4	30x30x 95	30.60	2– 8	4–4	B60-W20S	B60-W20	42570	26400
B60-S21S	B60-S21	27300	16800	2–10	1–4	32x32x 90	30.60	2–10	4–4	B60-W21S	B60-W21	45045	27720
B60-S22S	B60-S22	28500	17600	2–10	1–4	32x32x 95	33.70	2–10	4–4	B60-W22S	B60-W22	47025	29040
B60-S23S	B60-S23	29700	18400	2–10	1–4	34x34x 90	33.70	2–10	4–4	B60-W23S	B60-W23	49000	30360
B60-S24S	B60-S24	31200	19200	2–10	1–4	34x34x 95	36.70	2–10	4–4	B60-W24S	B60-W24	51480	31680
B60-S25S	B60-S25	32600	20000	2–10	1–4	34x34x100	36.70	2–10	4–4	B60-W25S	B60-W25	53790	33000

Returns—All B-60 steam boilers, one opening in middle of rear equalizer. Section tapped for indirect water heater **only when specified on order.** *Guaranteed ratings based on use of 12000 B. T. U. Bituminous coal, **using chimney sizes shown.**



Measurements are given in inches applying to Steam or Water, Smokeless or Regular

Number	A	B	C	E	F	H	J	K	L	N	V	W	G Steam Only
B60-10	87	72	80	62	22	12x16	17½	18x40	72	68	93	102	
B60-11	87	79	80	62	22	12x16	17½	18x40	72	68	93	109	
B60-12	87	86	80	62	22	12x16	17½	18x40	72	68	93	116	
B60-13	87	93	80	62	22	12x16	17½	18x40	72	68	93	123	Maximum Water Line 62 inches
B60-14	87	100	80	62	22	12x16	17½	18x40	72	68	93	130	
B60-15	87	107	80	62	22	12x16	17½	18x40	72	68	93	137	
B60-16	87	114	80	62	22	12x16	17½	18x54	72	68	93	144	
B60-17	87	121	80	62	22	12x16	17½	18x54	72	68	93	151	Minimum Water Line 55 inches
B60-18	87	128	80	62	22	12x16	17½	18x54	72	68	93	158	
B60-19	87	135	80	62	22	12x16	17½	18x54	72	68	93	165	
B60-20	87	142	80	62	22	12x16	17½	18x54	72	68	93	172	
B60-21	87	149	80	62	22	12x16	17½	18x54	72	68	93	179	
B60-22	87	156	80	62	22	12x16	17½	18x54	72	68	93	186	
B60-23	87	163	80	62	22	12x16	17½	18x54	72	68	93	193	
B60-24	87	170	80	62	22	12x16	17½	18x54	72	68	93	200	
B60-25	87	177	80	62	22	12x16	17½	18x54	72	68	93	207	

PROX

Prox Economic Boiler

A-60 Series

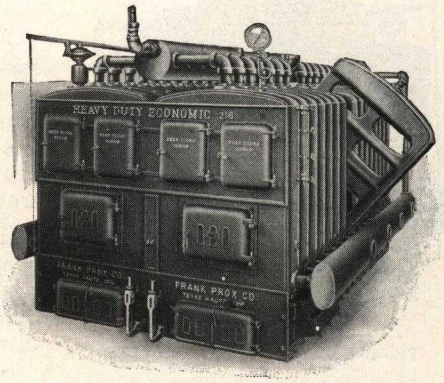
The A-60 series is of the twin duplex section, header design, and affords the same distinctive advantages as the B-60 series. Sections can be replaced the same as in the B-60 series. All A-60 boilers are equipped with steam separating header and return equalizer complete. Smokeless type is updraft single grate design.

Firing tools consist of poker, ash scraper and a flue brush.

Prox heavy duty line of boilers are all set up at the plant and tested. Method of setting up is very simple. We ship with each boiler a wood support. Owing to the size and shape of the sections they can be very easily handled. The top header is shipped all made up, ready to set in place and screw up. The side equalizing pipes are sent ready to assemble. This makes it very easy for the fitter to erect. All parts are marked "R" for right and "L" for left side of boiler.

Very efficient using coal, oil or gas for fuel.

Automatic coal stokers operate very efficiently in Prox boilers.



The A-60 Series—Water Line 50 Inches

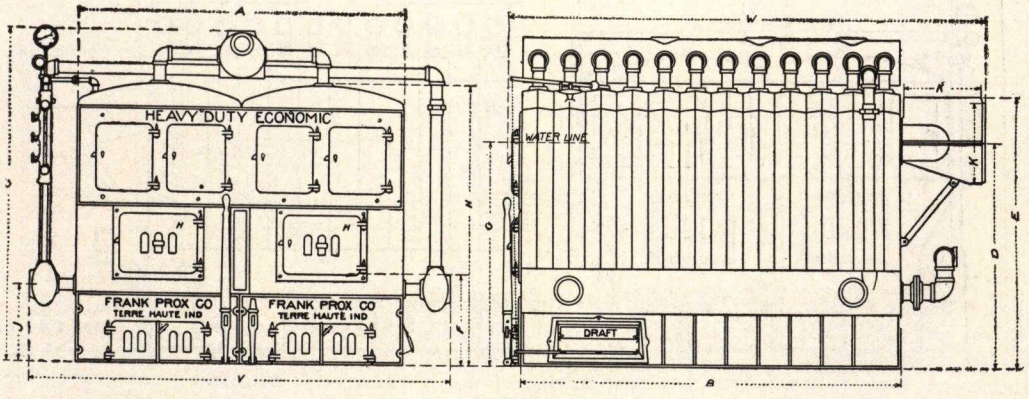
STEAM						STEAM AND WATER		WATER					
Water Line {Maximum, 55 inches Minimum, 50 inches													
Smokeless Boiler Number	Regular Boiler Number	Commercial Rating Steam	Guaranteed Rating Steam*	Flows (inches)	Returns (inches)	Chimney Sizes for One Boiler	Grate Area (sq. ft.)	Flows (inches)	Returns (inches)	Smokeless Boiler Number	Regular Boiler Number	Commercial Rating Water	Guaranteed Rating Water*
						Feet							
A60-S7S	A60-S7	7300	4000	2–5	1–3	20x20x60	15.31	2–5	4–4	A60-W7S	A60-W7	12045	6600
A60-S8S	A60-S8	8000	4700	2–5	1–3	20x24x60	18.37	2–5	4–4	A60-W8S	A60-W8	13200	7755
A60-S9S	A60-S9	9000	5400	2–5	1–3	20x24x65	21.43	2–5	4–4	A60-W9S	A60-W9	14850	8910
A60-S10S	A60-S10	10000	6000	3–5	1–3	20x24x70	21.43	3–5	4–4	A60-W10S	A60-W10	16500	9900
A60-S11S	A60-S11	10800	6600	3–5	1–3	24x24x70	21.43	3–5	4–4	A60-W11S	A60-W11	17820	10890
A60-S12S	A60-S12	11600	7200	3–5	1–3	24x24x75	21.43	3–5	4–4	A60-W12S	A60-W12	19140	11880
A60-S13S	A60-S13	12500	7800	3–5	1–3	24x24x75	24.50	3–5	4–4	A60-W13S	A60-W13	20625	12870

Steam Return—One 3-inch connection in middle of rear equalizer. Single flanged flow opening furnished on order.

Section tapped for indirect water heaters only when specified on order.

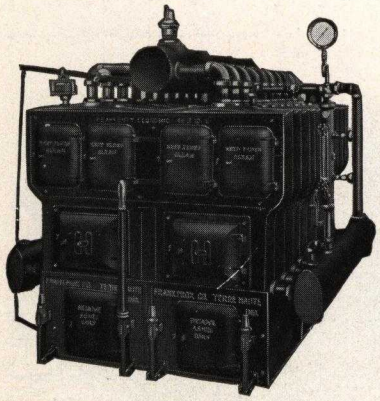
*Guaranteed ratings are based on use of 12000 B. T. U. Bituminous coal, using chimney sizes shown.

A-60 Series Dimensions



Measurements are given in inches applying to Steam or Water, Smokeless or Regular

Number	A	B	C	D	E	F	H	J	K	N	V	W	G Steam Only
A60- 7	72	51	72	50	60	20½	12x16	17½	18	61	93	78	Maximum
A60- 8	72	58	72	50	60	20½	12x16	17½	18	61	93	85	Water Line
A60- 9	72	65	72	50	60	20½	12x16	17½	18	61	93	92	55 inches
A60-10	72	72	72	50	60	20½	12x16	17½	18	61	93	99	
A60-11	72	79	72	50	60	20½	12x16	17½	18	61	93	106	Minimum
A60-12	72	86	72	50	60	20½	12x16	17½	18	61	93	113	Water Line
A60-13	72	93	72	50	60	20½	12x16	17½	18	61	93	120	50 inches



The 40 Series—44-Inch Water Line

Prox Duplex Economic Boilers

40 Series

Are the junior duplex twin section, header type boilers, designed for heating schools, apartments, business buildings, etc., which do not require the higher capacities found in the B-60 and A-60 series. By comparison, it will be evident that the 40 series has every one of the distinctive advantages afforded by the B-60 and A-60 series boilers. This boiler is exceptionally ideal for oil burning because of the height of combustion space and full three-length fire travel in three layers.

The 40 series can be installed in close quarters with exceedingly low head room. The water line is only 44 inches. No overhead room for constructing headers is required as the boiler has its own positive steam separating header. The cost of constructing headers is saved, and the flow main may be taken direct from flow opening in the header.

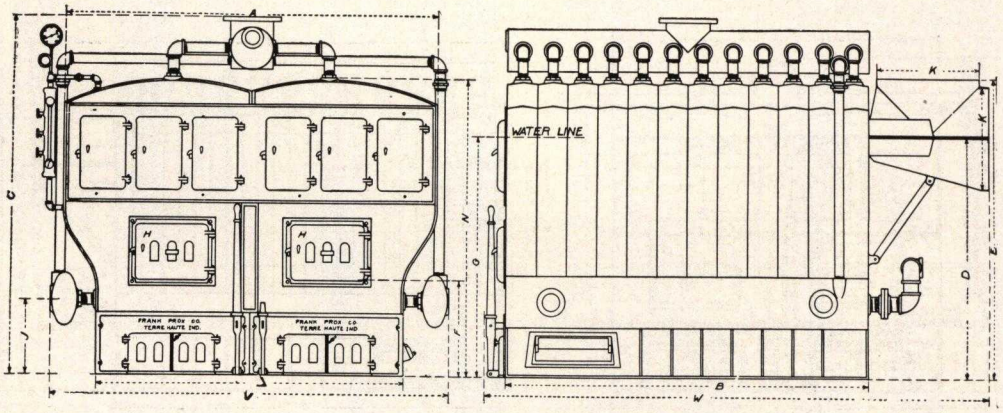
All smokeless Prox duplex boilers have four grate controls for shaking four grate areas independently, at the right or left and at the front or rear of the fuel bed. In mild weather the independent rear grates may be covered with ashes and fuel burned only on the front grates. This boiler has a short wide fuel bed which is easy to manage and is very economical in fuel. The flues are large and all parts easy to clean.

Automatic Coal Stokers are very efficient in Prox Boilers.

STEAM		Water Line {Maximum, 50 inches Minimum, 44 inches				STEAM AND WATER		WATER					
Smokeless Boiler Number	Regular Boiler Number	Commercial Rating Steam	Guaranteed Rating Steam*	Flows (inches)	Returns (inches)	Chimney Sizes	Grate Area (sq. ft.)	Flows (inches)	Returns (inches)	Smokeless Boiler Number	Regular Boiler Number	Commercial Rating Water	Guaranteed Rating Water*
						Feet							
.....	40-S6	4200	2200	2–5	1–3	16x20x50	8.36	2–5	4–4	.....	40-W6	6930	3630
40-S7S	40-S7	5000	2600	2–5	1–3	16x20x50	10.45	2–5	4–4	40-W7S	40-W7	8250	4290
40-S8S	40-S8	5800	3100	2–5	1–3	20x20x50	12.54	2–5	4–4	40-W8S	40-W8	9570	5115
40-S9S	40-S9	6600	3600	2–5	1–3	20x20x50	14.63	2–5	4–4	40-W9S	40-W9	10890	5940
40-S10S	40-S10	7400	4000	3–5	1–3	20x20x55	16.72	3–5	4–4	40-W10S	40-W10	12210	6600
40-S11S	40-S11	8200	4400	3–5	1–3	20x24x60	18.81	3–5	4–4	40-W11S	40-W11	13530	7260
40-S12S	40-S12	9000	4800	3–5	1–3	20x24x60	20.90	3–5	4–4	40-W12S	40-W12	14850	7920

Steam Return—One 3-inch connection in middle of rear equalizer. Single flanged flow opening furnished on order.
Section tapped for indirect water heater, **only when specified on order.**
*Guaranteed Ratings are based on use of 12000 B. T. U. Bituminous Coal, **using chimney sizes shown.**

40 Series Dimensions



Measurements are given in inches applying to Steam or Water, Smokeless or Regular

Number	A	B	C	D	E	F	H	J	K	L	N	V	W	G Steam Only
40- 6	60	44	65¼	46½	52½	20½	12x16	17½	18	52	53½	72	71	Maximum
40- 7	60	51	65¼	46½	52½	20½	12x16	17½	18	52	53½	72	78	Water Line
40- 8	60	58	65¼	46½	52½	20½	12x16	17½	18	52	53½	72	85	50 inches
40- 9	60	65	65¼	46½	52½	20½	12x16	17½	18	52	53½	72	92	
40-10	60	72	65¼	46½	52½	20½	12x16	17½	18	52	53½	72	99	Minimum
40-11	60	79	65¼	46½	52½	20½	12x16	17½	18	52	53½	72	106	Water Line
40-12	60	86	65¼	46½	52½	20½	12x16	17½	18	52	53½	72	113	44 inches

PROX

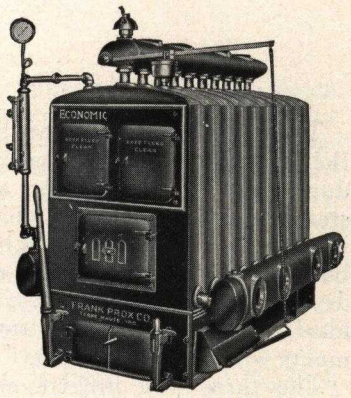
Prox Economic Boilers—Jacketed and Unjacketed

E-30 Series—End Fired

The E-30 series of end fired Economic boilers was designed to meet the demand for a boiler with the distinctive advantages of the other Prox boilers, which could be used in long narrow basements with low head room. This boiler has full three layer fire travel, and is complete with a positive steam separating header. Very efficient, burning coal, coke, oil or gas.

Prox boilers are conservatively rated according to accepted standards. If proper allowances are made for a factor of safety to insure quick response to early morning firing, for heat losses in mains, and for fuel of low heat value, the boiler will be of ample size to insure fuel economy, providing the chimney is properly constructed and of sufficient size.

It is essential that a boiler be properly covered with a good grade of asbestos covering.



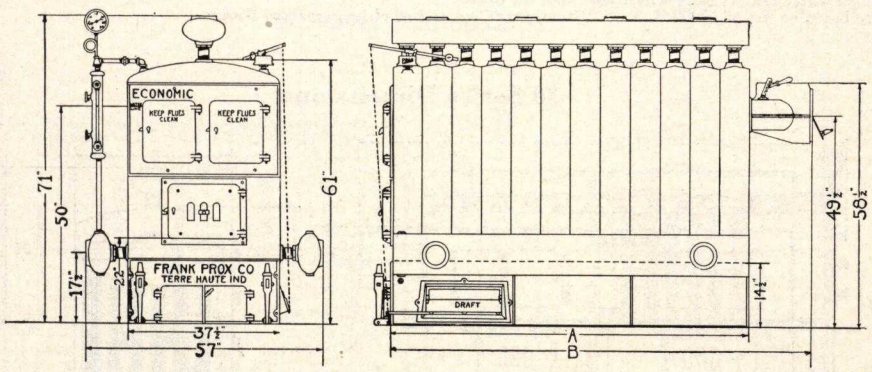
The E-30 Series—50-Inch Water Line

Jacketed Boilers have 1¼-inch Rock Wool Insulation on front, back, top and sides.

Automatic Coal Stokers are very efficient in Prox boilers.

STEAM Water Line (Maximum, 55 inches / Minimum, 50 inches)				STEAM AND WATER				WATER			
Smokeless Boiler Number	Regular Boiler Number	Commercial Rating Steam	Guaranteed Rating Steam*	Chimney Sizes for One Boiler	Grate Area (sq. ft.)	Flows (inches)	Returns (inches)	Smokeless Boiler Number	Regular Boiler Number	Commercial Rating Water	Guaranteed Rating Water*
				Feet							
E30-S7S	E30-S7	3200	1700	16x16x45	7.50	3–4	3–4	E30-W7S	E30-W7	5280	2805
E30-S8S	E30-S8	3700	2000	16x20x50	8.75	3–4	3–4	E30-W8S	E30-W8	6105	3300
E30-S9S	E30-S9	4200	2300	16x20x55	10.20	3–4	3–4	E30-W9S	E30-W9	6930	3795
E30-S10S	E30-S10	4700	2600	20x20x50	11.66	4–4	4–4	E30-W10S	E30-W10	7755	4290
E30-S11S	E30-S11	5200	2900	20x20x55	13.12	4–4	4–4	E30-W11S	E30-W11	8580	4785
E30-S12S	E30-S12	5700	3150	20x20x55	14.58	4–4	4–4	E30-W12S	E30-W12	9405	5198

Section tapped for indirect water heater, **only when specified on order.**
*Guaranteed ratings are based on use of 12000 B. T. U. Bituminous coal, **using chimney sizes shown.**



Measurements are given in inches, applying to Steam or Water, Smokeless or Regular

No.	A	B	Diam. Smoke Box
E30- 7...	51	69	15
E30- 8...	58	76	15
E30- 9...	65	83	15
E30-10...	72	90	15
E30-11...	79	97	15
E30-12...	86	104	15

The Prox Smokeless Boiler is the up-draft type, with a single layer grate. It is readily understood how the admission of air to a smoking gas jet or lamp flame causes it to burst into brilliancy. The heat is intensified and all smoke disappears, because the smoky flame required only the additional oxygen to complete the combustion and utilize the full heat potential. Exactly the same thing is done in the Prox Hot Blast Smokeless boilers. The smoky volatile gases rising from the fuel bed are supplied with additional oxygen by the Hot Blast section, pre-heating it between the tile blocks in the hot blast section. It then precipitates downward and thoroughly carburizes with the volatile gases from the fuel bed, the reignition and complete combustion producing intense heat in the secondary combustion chamber and burning the smoke. The hot gases must travel three times the length of the boiler in three layers before passing out.

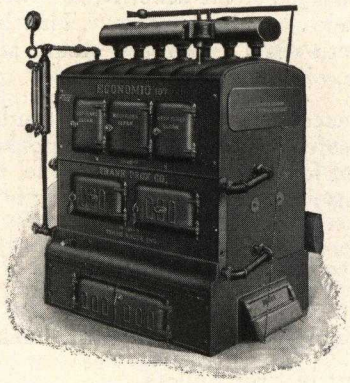
PROX

Prox Economic Boilers

30 Series—Side Fired

The Economic side feed boiler has the continuous service feature of the duplex series. It has also a positive steam separating header which comes with the boiler and does not have to be built locally at considerable expense if dry steam is to be insured. This is an ideal boiler to install in small basements with low head room.

The three way fire travel through the flues is not sacrificed in this boiler, thus low stack temperature and great-amount of available heat units absorbed by the boiler. When firing during mild weather, cover grates of boiler with ashes next to smoke box end and use only grates in the far end. Burns Coal, Coke, Oil or Gas efficiently.



The 30 Series—50-Inch Water Line

The manifold way of connecting the sections of Prox boilers, means that all connections are on the outside of the boiler where they are readily accessible at all times and under all conditions. By the manifold way of connecting, each section becomes a boiler within itself, and if any of the sections become disabled, they can be disconnected from the headers, headers plugged and boiler continued in use until repair arrives.

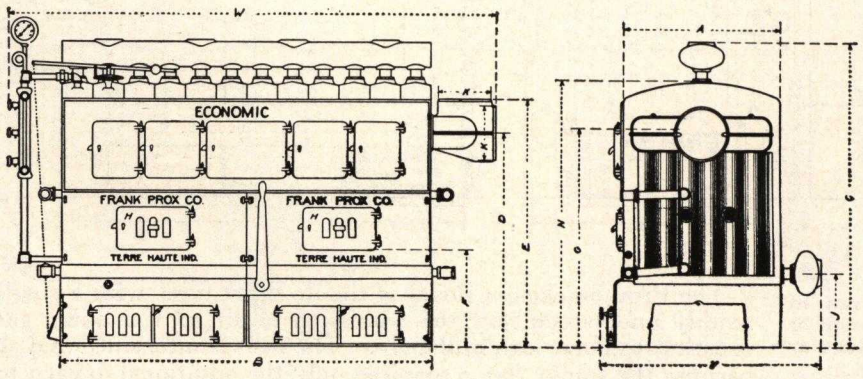
All 30 series boilers have two fire doors.

Automatic Coal Stokers operate very efficiently in Prox Boilers.

STEAM Water Line {Maximum, 55 inches Minimum, 50 inches			STEAM AND WATER				WATER		
Regular Boiler Number	Commercial Rating Steam	Guaranteed Rating Steam *	Chimney Sizes For One Boiler	Grate Area (sq. ft.)	Flows (inches)	Returns (inches)	Regular Boiler Number	Commercial Rating Water	Guaranteed Rating Water *
			Feet						
30-S7	3200	1700	16x16x45	7.50	3–4	3–4	30-W7	5280	2805
30-S8	3700	2000	16x20x45	8.75	3–4	3–4	30-W8	6105	3300
30-S9	4200	2300	16x20x50	10.20	3–4	3–4	30-W9	6930	3795
30-S10	4700	2600	16x20x55	11.66	4–4	4–4	30-W10	7755	4290
30-S11	5200	2900	20x20x55	13.12	4–4	4–4	30-W11	8580	4785
30-S12	5700	3150	20x20x60	14.58	4–4	4–4	30-W12	9405	5198

Section tapped for indirect water heaters **only when specified on order.**
*Guaranteed ratings are based on use of 12000 B. T. U. Bituminous Coal, **using chimney sizes shown.**

30 Series Dimensions



Measurements are given in inches applying to Steam or Water, Smokeless or Regular

Number	A	B	C	D	E	F	H	J	K	N	V	W	G Steam Only
30-7	36	51	70	50	58	24	9x16	17½	12	61	50	74	Maximum
30-8	36	58	70	50	58	24	9x16	17½	12	61	50	81	Water Line
30-9	36	65	70	50	58	24	9x16	17½	12	61	50	88	55 inches
30-10	36	72	70	50	58	24	9x16	17½	14	61	50	95	Minimum
30-11	36	79	70	50	58	24	9x16	17½	14	61	50	102	Water Line
30-12	36	86	70	50	58	24	9x16	17½	14	61	50	109	50 inches

PROX

Prox Economic Boilers—Jacketed and Unjacketed

20 Series—Side Fired

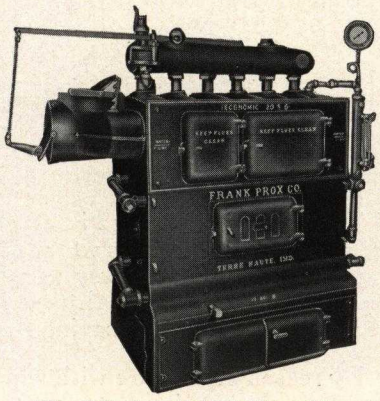
The 20 series is a small sectional boiler having the distinctive advantages of the header design of the larger Prox boilers. This is an ideal boiler for installation in homes. It has three layer fire travel, steam separating header, continuous service assurance and ease and economy of repairing if ever necessary. The grate is but 20 inches across, consequently the fuel bed is easy to manage. The 20 series is particularly adapted for use with oil burning attachments on account of the long fire travel three times from end to end of boiler, in three separate tiers.

Regular trimmings including safety valves are supplied with Prox steam boilers at no additional cost. All safety valves furnished with Prox boilers conform in size to requirements of American Society of Mechanical Engineers. Valves are regularly furnished locked and sealed and set at 15 pounds pressure. If any other pressure is required, please specify on your order.

All 20 series boilers above six sections have two fire doors.

Jacketed Boilers have a 1¼-inch Rock Wool Insulation on front, back, top and sides.

Automatic Coal Stokers are very efficient in Prox Boilers.

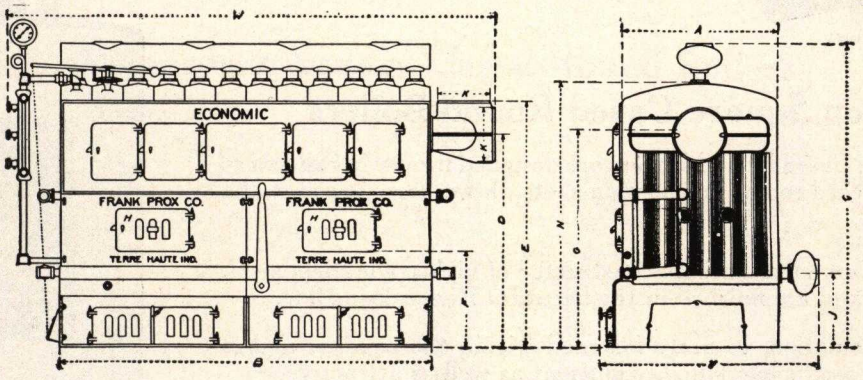


The 20 Series—44-Inch Water Line

STEAM Water Line (Maximum, 50 inches / Minimum, 44 inches)			STEAM AND WATER				WATER		
Regular Boiler Number	Commercial Rating Steam	Guaranteed Rating Steam*	Chimney Sizes For One Boiler	Grate Area (sq. ft.)	Flows (inches)	Returns (inches)	Regular Boiler Number	Commercial Rating Water	Guaranteed Rating Water*
			Feet						
20-S5	1500	600	12x12x35	2.91	2–4	2–4	20-W5	2310	990
20-S6	1800	800	12x16x35	3.88	2–4	2–4	20-W6	2970	1320
20-S7	2100	1000	12x16x35	4.86	3–4	3–4	20-W7	3465	1650
20-S8	2400	1200	12x16x40	5.83	3–4	3–4	20-W8	3960	1980
20-S9	2800	1400	16x16x40	6.70	3–4	3–4	20-W9	4670	2310
20-S10	3200	1600	16x16x40	7.77	4–4	4–4	20-W10	5280	2640
20-S11	3600	1800	16x16x45	8.75	4–4	4–4	20-W11	5940	2970
20-S12	4000	2000	16x20x50	9.72	4–4	4–4	20-W12	6600	3300

Section tapped for indirect water heater, **only when specified on order.**
*Guaranteed ratings are based on use of 12000 B. T. U. Bituminous coal, **using chimney sizes only.**

20 Series Dimensions



Measurements are given in inches applying to Steam or Water, Smokeless or Regular

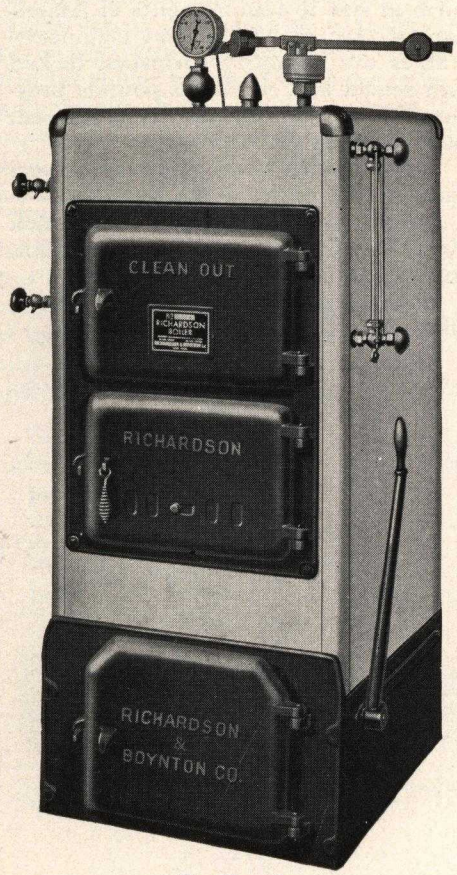
Number	A	B	C	D	E	F	H	J	K	N	V	W	G Steam Only
20-5	29¾	37	63	46½	53¼	24	9x16	17½	12	53¼	41	60	Maximum
20-6	29¾	44	63	46½	53¼	24	9x16	17½	12	53¼	41	67	Water Line
20-7	29¾	51	63	46½	53¼	24	9x16	17½	12	53¼	41	74	50 inches
20-8	29¾	58	63	46½	53¼	24	9x16	17½	12	53¼	41	81	
20-9	29¾	65	63	46½	53¼	24	9x16	17½	12	53¼	41	88	Minimum
20-10	29¾	72	63	46½	53¼	24	9x16	17½	12	53¼	41	95	Water Line
20-11	29¾	79	63	46½	53¼	24	9x16	17½	12	53¼	41	102	44 inches
20-12	29¾	86	63	46½	53¼	24	9x16	17½	12	53¼	41	109	

RICHARDSON & BOYNTON COMPANY NEW YORK, N. Y.

Executive Offices—244 Madison Avenue

Branch Offices

Utica, New York
Dover, New Jersey
Boston, Massachusetts
Providence, Rhode Island
Chicago, Illinois
Philadelphia, Pa.
Buffalo, New York
Minneapolis, Minn.



Blue Comet

The Blue Comet Boiler

The new Richardson and Boynton Blue Comet fills the demand for a small or medium sized sectional boiler at a reasonable price.

The boiler comes cased in a well designed blue enameled jacket. Thus in cellars and basements where interior decoration has been accomplished the Blue Comet is entirely at home. The jackets are not alone for the purpose of beauty. Each case is thoroughly insulated with air cell asbestos linings, thereby saving fuel and conserving heat losses.

By reason of the care with which this design has been carried out there develops the maximum amount of heat from the fuel. Its economy of operation and quick response to firing operations insure comfort at all times. In the feed door there is an air intake device. This is of special interest since by its use a more complete combustion of fuel can be had, thus adding to the economy of operation.

Both steam and hot water Blue Comet boilers are completely equipped with attractive accessories for easy operation and regulation. The grates are designed for all sizes of coal, even the small sizes of anthracite.

All parts of the boiler are carefully fitted, thus insuring minimum time of installation and protection against failure of satisfactory operation when first installed. In addition, great care is taken to protect the user from the annoyance and delay caused by defective parts. Blue Comet boilers come ready to be installed and to give immediate, lasting and highly efficient service.

Richardson Square Cased Round Boilers

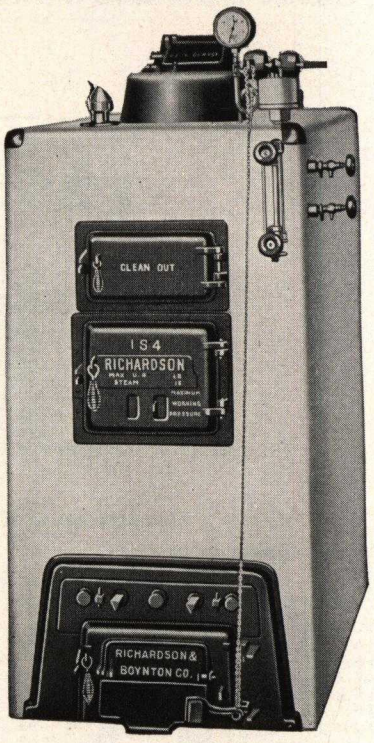
Richardson Square Cased Round Boilers are designed for use in residences in which playrooms, card rooms, music rooms, etc., have been placed in the basement.

These casings are very substantially constructed of high grade sheet steel, are easily assembled and are finished in the beautiful Richardson Blue.

Heavy asbestos insulation, securely fastened within the casings, makes Richardson Square Cased Boilers highly efficient as well as attractive.

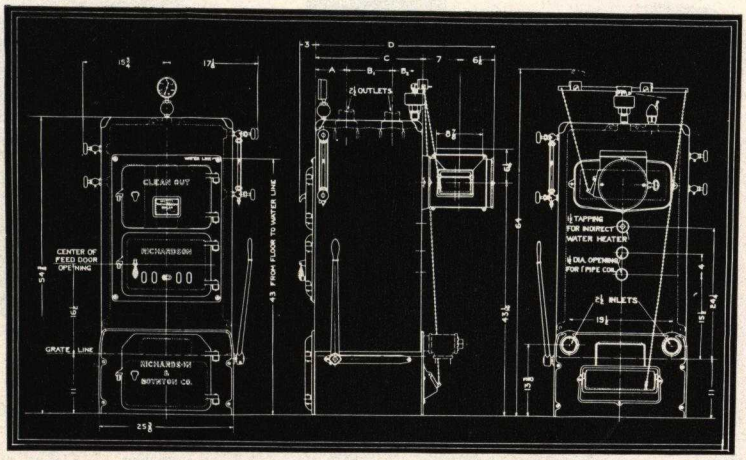
The Richardson Round Boilers, illustrated and described on the preceding pages, can all be furnished covered with square casings as shown by the illustrations on this page.

The same high grade principles of construction that go into the other round boilers can be found in the Richardson Square Cased Round Boilers. Deep fire chambers, large feed and ashpit doors, long firing periods; in fact, every modern detail of boiler construction has been incorporated in these boilers to make them a model of convenience and satisfaction to the home owner over a long period of years.



1-S and 1-W Series for Anthracite, Oil and Gas

Richardson Blue Comet Boiler



Boiler No.	STEAM Rating Sq. Ft.	STEAM Recommended Net Load E. D. R. Sq. Ft.	WATER Rating Sq. Ft.	WATER Recommended Net Load E. D. R. Sq. Ft.	STEAM AND WATER Grate Area Square Feet	Outlets No. and Size	Inlets No. and Size	Chimney Size Inches	Chimney Height Feet	DIMENSIONS, INCHES A	B1	B2	C	D
714	400	200	675	325	1.41	2–2½	2–2½	8x8	30	.....	.....	.....	.....	.....
715	575	285	950	470	1.91	2–2½	2–2½	8x8	30	5⅞	8½	.....	20¼	33¾
716	750	370	1250	615	2.41	2–2½	2–2½	8x8	30	10⅛	8½	.....	24½	38
717	925	455	1550	716	2.91	2–2½	2–2½	8x12	35	10⅛	8½	.....	28¾	42¼
718	1100	540	1850	905	3.41	3–2½	2–2½	8x12	35	10⅛	8½	8½	33	46½
719	1275	625	2150	1050	3.91	3–2½	2–2½	8x12	35	10⅛	8½	8½	37¼	50¾

Size of Smoke Pipe 9 inches. Water Line 43 inches.

ASSEMBLY OF SECTIONS

F—Front Section
M—Middle or Intermediate Section
T—Tap or Flow Section
B—Back Section

714—F-T-T-B
715—F-T-M-T-B
716—F-M-T-M-T-B
717—F-M-T-M-T-M-B
718—F-M-T-M-T-M-T-B
719—F-M-T-M-T-M-T-M-B

Richardson Square Cased Round Boilers

	Steam									Water							
No.	Diam. Grate Inches	Grate Area Sq. Ft.	Size Smoke Pipe Inches	Height Water Line Inches	Inlets and Outlets No. and Size	Height of Jacket Inches	Square of Jacket Inches	Ratg. Sq. Ft.	No.	Diam. Grate Inches	Grate Area Sq. Ft.	Size Smoke Pipe Inches	Inlets and Outlets No. and Size	Height of Jacket Inches	Square of Jacket Inches	Ratg. Sq. Ft.
1-S and 1-W Series for Anthracite, Oil and Gas																
1-S-1	17	1.58	7	44¼	2–2½	50	26½	350	1-W-1	17	1.58	7	2–2½	43½	26½	550
1-S-2	17	1.58	7	48½	2–2½	54	26½	425	1-W-2	17	1.58	7	2–2½	47½	26½	675
1-S-3	20	2.18	8	45¼	2–3	51	29½	550	1-W-3	20	2.18	8	2–3	44¼	29½	850
1-S-4	20	2.18	8	49½	2–3	55	29½	650	1-W-4	20	2.18	8	2–3	48¼	29½	1050
1-S-5	23	2.89	9	48¼	2–3	54	32½	800	1-W-5	23	2.89	9	2–3	46¾	32½	1350
1-S-6	23	2.89	9	52½	2–3	58	32½	900	1-W-6	23	2.89	9	2–3	50¾	32½	1500
1-S-7	26	3.70	10	49½	2–3½	55½	36	1050	1-W-7	26	3.70	10	2–3½	47½	36	1700
1-S-8	26	3.70	10	53¾	2–3½	59½	36	1150	1-W-8	26	3.70	10	2–3½	51½	36	1900
1-S-9	29	4.59	10	53½	2–3½	60	41	1300	1-W-9	29	4.59	10	2–3½	51	41	2100
1-S-10	29	4.59	10	58⅞	2–3½	65	41	1425	1-W-10	29	4.59	10	2–3½	56½	41	2300

Note—The schedule following shows all series of Square Cased Round Boilers and numbers of Regular Round Boilers that correspond, together with page reference for detailed dimensions.

1-S and 1-W Series

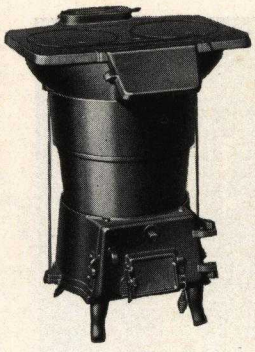
Square Cased Boiler No., Steam.....	1-S-1	1-S-2	1-S-3	1-S-4	1-S-5	1-S-6	1-S-7	1-S-8	1-S-9	1-S-10
Square Cased Boiler No., Water.....	1-W-1	1-W-2	1-W-3	1-W-4	1-W-5	1-W-6	1-W-7	1-W-8	1-W-9	1-W-10
Round Boiler No., Steam and Water.	174	175	204	205	234	235	264	265	294	295

See Following Page

Richardson Super-Test Hot Water Supply Boilers



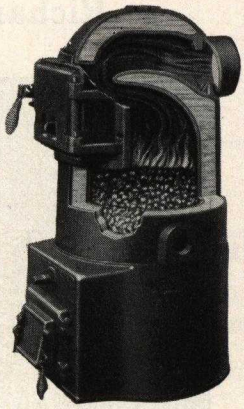
No. 41



No. 41TL



No. 106



No. 1014



No. 1175

Richardson Super-Test Flat Top Hot Water Supply Boilers

	Number	Gallons Capacity	Grate Diameter in Inches	Depth Water Section Inches	Height Over-all in Inches	Over-all Width of Base in Inches	Number and Size Flow and Return Tappings	Height to Flow Outlet in Inches	Height to Return Inlet in Inches	Size Smoke Pipe in Inches	Approx. Shipping Weight Pounds
Flat Top—Open Base.....	41	40	10	5	18¾	13⅝	2—1	16½	14¼	6	115
	66	66	10	7	20¾	13⅝	2—1¼	18 9/16	14⅜	6	130
	83	82	12	5	20	18	2—1¼	18¼	14⅛	6	140
	101	100	12	7	22	18	2—1¼	19¾	16⅛	6	160
	121	120	12	9	24	18	2—1¼	20¾	16⅞	6	180
Flat top with base bottom....	41-B	40	10	5	19	13⅝	2—1	16¾	14½	6	125
	66-B	66	10	7	21	13⅝	2—1¼	18 13/16	14⅝	6	140
	83-B	82	12	5	20⅞	18	2—1¼	17¾	13⅞	6	155
	101-B	100	12	7	22½	18	2—1¼	20¼	16⅛	6	175
	121-B	120	12	9	24½	18	2—1¼	21¼	17⅛	6	195
Flat top with base bottom and legs.....	41-L	40	10	5	22 7/16	13⅝	2—1	20 3/16	17 5/16	6	130
	66-L	66	10	7	24½	13⅝	2—1¼	22 5/16	18 1/16	6	145
Laundry top—open base.....	41-T	40	10	5	22⅝	13⅝	2—1	16½	14¼	6	135
	66-T	66	10	7	24¾	13⅝	2—1¼	18 9/16	14⅜	6	150
	83-T	82	12	5	23⅞	18	2—1¼	18¼	14⅛	6	165
	101-T	100	12	7	25⅞	18	2—1¼	19¾	15⅞	6	185
	121-T	120	12	9	27⅞	18	2—1¼	20¾	16⅞	6	205
Laundry top with base bottom	41-TB	40	10	5	22⅞	13⅝	2—1	16¾	14½	6	145
	66-TB	66	10	7	24⅞	13⅝	2—1¼	18 13/16	14⅜	6	160
	83-TB	82	12	5	24⅜	18	2—1¼	18¼	14⅛	6	180
	101-TB	100	12	7	26⅜	18	2—1¼	20¼	16⅛	6	200
	121-TB	120	12	9	28⅜	18	2—1¼	21¼	17⅛	6	220
Laundry top with base bottom and legs.....	41-TL	40	10	5	26 5/16	13⅝	2—1	20 3/16	17 5/16	6	150
	66-TL	66	10	7	28⅜	13⅝	2—1¼	22 5/16	18 1/16	6	165

Base bottoms, legs, and laundry tops can also be furnished with Nos. 83-101-121.

Richardson Super-Test Dome Top

Number	Capacity in Gallons	Approx. Number of Families Supplied	Grate Area in Feet	Height to Top Outlet Feet	Height to Return Inlet Inches	Number and Size Flow and Return Tappings	Width Base Inches	Size Smoke Pipe Inches	Size of Chimney Inches	Height of Chimney in Feet	Approx. Shipping Weight Pounds
100	85 to 100	1 to 3	.54	24½	11½	F-1—1¼ R-2—1¼	16	5	8½x8½	35	215
105 with brick ring	100 to 125	2 to 3	.54	30½	17½	F-1—1¼ R-2—1¼	16	5	8½x8½	35	235
106	125 to 150	3 to 4	.54	32	11½	F-1—1½ R-2—1½	16	5	8½x8½	35	290
1010	150 to 175	4 to 5	.54	32	11½	F-1—1½ R-2—1½	16	6	8½x8½	35	300
1012	250 to 300	5 to 8	.78	34¾	12¾	F-1—2 R-2—2	18½	6	8½x8½	35	390
1014	350 to 400	8 to 10	1.07	36¾	13¾	F-1—2½ R-2—2½	21½	6	8½x8½	35	490
1173	400 to 500	10 to 13	1.58	38½	14½	F-2—2½ R-2—2½	25¼	7	8½x8½	35	700
1174	600	13 to 15	1.58	42¾	14½	F-2—2½ R-2—2½	25¼	7	8½x8½	35	775
1175	700	15 to 17	1.58	47	14½	F-2—2½ R-2—2½	25¼	7	8½x8½	35	850
1204	800	17 to 20	2.18	43¾	15½	F-2—3 R-2—3	28½	8	8½x8½	35	920
1205	950	20 to 23	2.18	48	15½	F-2—3 R-2—3	28½	8	8½x8½	35	1025
1234	1100	23 to 27	2.89	45¾	16½	F-2—3 R-2—3	31½	9	8x12	35	1070
1235	1300	27 to 33	2.89	50	16½	F-2—3 R-2—3	31½	9	8x12	35	1200
1264	1600	33 to 40	3.70	47⅛	17½	F-2—3½ R-2—3½	35	10	8x12	40	1385
1265	1850	40 to 46	3.70	51⅛	17½	F-2—3½ R-2—3½	35	10	8x12	40	1550

Base bottoms can be furnished with Nos. 100-105-106-1010.
1173 furnished with base, firepot, and dome.
1174-1204-1234-1264 furnished with base, firepot, one intermediate, and dome.
1175-1205-1235-1265 furnished with base, firepot, two intermediates, and dome.

RICHMOND RADIATOR COMPANY, INC. NEW YORK, N. Y.

General Office: 1480 Broadway, Corner 42nd Street

Sales Offices

Chicago . . . . . 1531 South Peoria Street
Philadelphia . . . . . 2241 N. American Street
Gas Division . . . . . 2241 N. American Street
Boston . . . . . Somerville, Mass.

Warehouses

Chicago . . . . . 1531 South Peoria Street
Philadelphia . . . . . 2241 N. American Street
Boston . . . . . Somerville, Mass.
Newark . . . . . Newark Seaboard Terminal
Long Island City . . . . . 50-02 27th Street

MANUFACTURERS OF

"RICHMOND" TUSCAN

Jacketed Sectional Boilers—Round Boilers
Sectional Boilers—Hot Water Supply Boilers
Laundry Heaters—Hot Air Furnaces
Heatomat Gas Boilers—Radiators

Richmond Tuscan Round Boilers

Type A Flat Shaking Grate **Type B Triangular Revolving Grate**

Capacities, Measurements, Tappings, Etc.

STEAM BOILER DATA

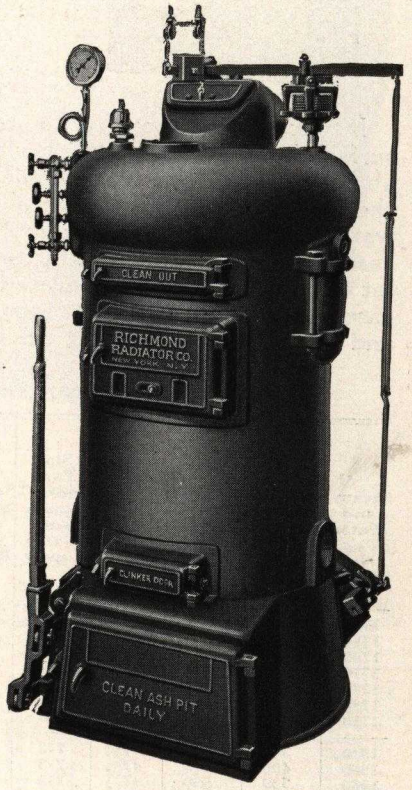
No.	Recommended Load Sq. Ft. E. D. R. Steam See Note	Commercial Rating	Water Line Steam Inches	Height to Outlet Steam Inches	Height Over All Steam Inches	Tappings 2 at Bottom 1 at Top	Smoke Pipe Inches	GRATE	
								Diam. Inches	Area Sq. Ft.
1814	247	500	39 3/8	46 1/8	52 1/2	2 1/2	7	18	1.76
1815	271	550	44 3/8	51 1/8	57 1/2	2 1/2	7	18	1.76
1816	300	600	49 3/8	56 1/8	62 1/2	2 1/2	7	18	1.76
1914	304	575	43 1/2	50	57	3	8	19	1.98
1915	337	625	48	55	62	3	8	19	1.98
1916	370	675	53	60	67	3	8	19	1.98
2014	350	650	45 1/2	52 3/8	59	3	8	20	2.17
2015	402	700	50 5/8	57 3/8	64	3	8	20	2.17
2016	435	750	55 3/4	62 3/8	69	3	8	20	2.17
2214	414	850	46 5/8	53 1/2	61 1/4	3 1/2	9	22	2.65
2215	459	925	51 5/8	58 1/2	66 1/4	3 1/2	9	22	2.65
2216	509	1000	56 5/8	63 1/2	71 1/4	3 1/2	9	22	2.65
2514	579	1175	47 1/2	53 5/8	60 3/4	3 1/2	9	25	3.40
2515	631	1250	52 1/2	58 5/8	65 3/4	3 1/2	9	25	3.40
2516	682	1325	57 1/2	63 5/8	70 3/4	3 1/2	9	25	3.40
2814	703	1400	48 5/8	55 1/2	63 5/8	4	10	28	4.25
2815	769	1550	53 5/8	60 1/2	68 5/8	4	10	28	4.25
2816	831	1675	58 5/8	65 1/2	73 5/8	4	10	28	4.25

WATER BOILER DATA

No.	Recommended Load Sq. Ft. E. D. R. Water See Note	Commercial Rating	Height to Outlet Water Inches	Height Over All Water Inches	Center to Center Supply Tappings Inches	Tappings 2 at Bottom 1 at Top	Smoke Pipe Inches	GRATE	
								Diam. Inches	Area Sq. Ft.
1824	387	775	42	49	11	2 1/2	7	18	1.76
1825	437	875	47	54	11	2 1/2	7	18	1.76
1826	487	975	52	59	11	2 1/2	7	18	1.76
1924	489	920	46	52	12	2 1/2	8	19	1.98
1925	540	1000	51	57	12	2 1/2	8	19	1.98
1926	590	1080	56	62	12	2 1/2	8	19	1.98
2024	560	950	48	54	13 1/2	2 1/2	8	20	2.17
2025	640	1075	53	59	13 1/2	2 1/2	8	20	2.17
2026	680	1200	58	64	13 1/2	2 1/2	8	20	2.17
2224	650	1300	48	56 1/2	14	3	9	22	2.65
2225	729	1450	53	61 1/2	14	3	9	22	2.65
2226	811	1625	58	66 1/2	14	3	9	22	2.65
2524	927	1850	47 5/8	56 1/2	17 1/2	3	9	25	3.40
2525	1006	2000	52 7/8	61 1/2	17 1/2	3	9	25	3.40
2526	1090	2175	57 5/8	66 1/2	17 1/2	3	9	25	3.40
2824	1130	2260	50 5/8	60	18 1/4	4	10	28	4.25
2825	1235	2475	55 5/8	65	18 1/4	4	10	28	4.25
2826	1332	2875	60 5/8	70	18 1/4	4	10	28	4.25

NOTE—Deduct piping load from E. D. R. ratings to arrive at actual direct radiation boiler will carry. Allowance must also be made for Domestic Water Supply Coil or Auxiliary Heater and uncovered boiler and piping.

*In ordering for Oil-burning use prefix "O," viz., O1814, O2214, etc.
Boilers are assembled complete with base, firepot, intermediate section and dome.
Those numbered 1814, 1914, 1924, etc., have single intermediate sections.
Those numbered 1815, 1825, 1915, 1925, etc., have two intermediate sections.
Those numbered 1816, 1826, 1916, 1926, etc., have three intermediate sections.



BOILERS FOR COAL BURNING

Steam Boilers—Furnished with Safety Valve, Water Gauge, Try Cocks, Retard Gauge, Automatic Damper Regulator and fire tools consisting of Poker and Flue Brush.

Water Boilers—Furnished with firing tools only.

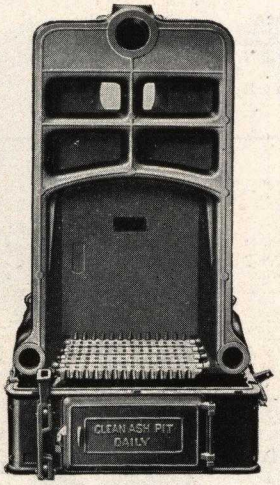
BOILERS FOR OIL BURNING

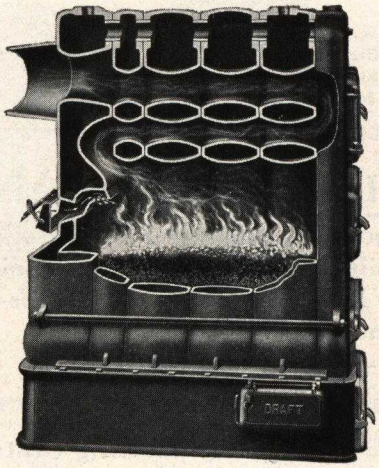
Steam and Water—Trimmings and equipment furnished are same as corresponding Coal Burning Boiler except Oil Burning Boilers are shipped less Grate Bars, Grate Parts, Shaker Handle, Regulation, and Firing Tools, but Flue Brush is included.

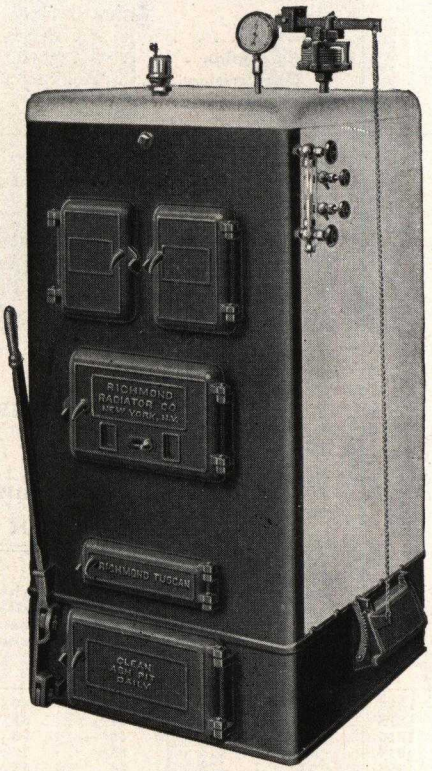
"RICHMOND" Tuscan Boilers Jacketed

Sectional . . Front Feed

Jackets: All Jacketed Boilers are regularly furnished with Metal Jacket (for front, rear, top and sides)







Interior views showing fire travel and flue area. Every inch of fire surface in "RICHMOND" Boilers is so backed by water that it readily absorbs the full heat and circulates it through the hollow double walls of the boiler and on through the piping to every part of the system. Because water surrounds every portion of the surface with which the fire or heated gases come in contact, and because the construction is such that the greatest area of the surface is so placed as to be in contact with the fire or heated gases, the Boiler is the most economical on the market in fuel consumption and has the highest heating efficiency.

Richmond Tuscan Jacketed Sectional Boilers—Capacities, Measurements, Tappings, Etc.

Steam and Water No.	STEAM BOILER DATA: Recommended Load Sq. Ft. E. D. R. Steam See Note	STEAM BOILER DATA: Commercial Rating	STEAM BOILER DATA: Water Line Inches	Size Tappings Steam and Water Supply	Size Tappings Steam and Water Return	STEAM AND WATER BOILER DATA: Width Grate Inches	Grate Area Sq. Ft.	Height to Outlet Inches	Total Length Inches	Width Inches	Smoke Pipe Inches	WATER BOILER DATA: Recommended Load Sq. Ft. E. D. R. Water See Note	WATER BOILER DATA: Commercial Rating	SECTIONS—TAPPED Feed and Return
1740	200	380	46	1-3	2-3	17	1.50	52	29½	28	9	320	600	Rear
1750	275	525	46	2-3	2-3	17	2.00	52	33½	28	9	440	850	Second and Rear
1760	350	650	46	2-3	2-3	17	2.50	52	37½	28	9	560	1080	Second and Rear
1770	425	800	46	2-3	2-3	17	3.00	52	41½	28	9	680	1325	Second and Rear
1780	500	975	46	2-3	2-3	17	3.50	52	45½	28	9	800	1575	Second and Rear
1790	575	1125	46	2-3	2-3	17	4.00	52	49½	28	9	920	1800	Second and Rear
1710	650	1275	46	2-3	2-3	17	4.50	52	53½	28	9	1040	2050	Second and Rear
1940	300	550	47½	1-3	2-3	19	1.66	56	29½	30	9	480	940	Rear
1950	400	775	47½	2-3	2-3	19	2.17	56	33½	30	9	640	1225	Second and Rear
1960	500	950	47½	2-3	2-3	19	2.72	56	37½	30	9	800	1550	Second and Rear
1970	600	1150	47½	2-3	2-3	19	3.24	56	41½	30	9	960	1875	Second and Rear
1980	700	1325	47½	2-3	2-3	19	3.80	56	45½	30	9	1120	2175	Second and Rear
1990	800	1550	47½	2-3	2-3	19	4.32	56	49½	30	9	1280	2475	Second and Rear
1910	900	1750	47½	2-3	2-3	19	5.00	56	53½	30	9	1440	2800	Second and Rear
1911	1000	1975	47½	2-3	2-3	19	5.52	56	57½	30	9	1660	3150	Second and Rear
1912	1100	2125	47½	2-3	2-3	19	6.04	56	61½	30	9	1760	3480	Second and Rear
3005	1360	2675	53¼	2-4	2-4	30	5.35	62	48¼	44	14	2200	4350	Second and Rear
3006	1620	3200	53¼	2-4	2-4	30	6.67	62	54¾	44	14	2500	4950	Second and Rear
3007	1840	3625	53¼	2-4	2-4	30	8.00	62	61¼	44	14	2910	5775	Second and Rear
3008	2100	4150	53¼	3-4	3-4	30	9.32	62	67¾	44	14	3320	6600	Second, Fifth and Rear
3009	2340	4625	53¼	3-4	3-4	30	10.63	62	74¼	44	14	3710	7375	Second, Fifth and Rear
3010	2590	5150	53¼	3-4	3-4	30	11.94	62	80¾	44	14	4110	8175	Second, Sixth and Rear
3011	2850	5650	53¼	4-4	4-4	30	13.25	62	87¼	44	14	4540	9000	Second, Fifth, Eighth and Rear
3012	3080	6100	53¾	4-4	4-4	30	14.61	62	93¾	44	14	4925	9800	Second, Fifth, Eighth and Rear
3013	3320	6600	53¾	4-4	4-4	30	15.90	62	100¼	44	14	5275	10500	Second, Sixth, Tenth and Rear

In ordering specify "S" for steam, viz., 1740S, 3005S, etc.; for Water specify "W," viz., 1740W, 3005W, etc.; for Oil, use prefix "O," viz., O1740W or O3005S.

NOTE—Deduct piping load from E. D. R. ratings to arrive at actual direct radiation boiler will carry. Allowance must also be made for Domestic Water Supply Coil or Auxiliary Heater and uncovered boiler and piping.

BOILERS FOR COAL BURNING

Steam Boilers — Furnished with Safety Valve, Water Gauge, Try Cocks, Retard Gauge, Automatic Damper Regulator and firing tools consisting of Hoe, Poker and Flue Brush.

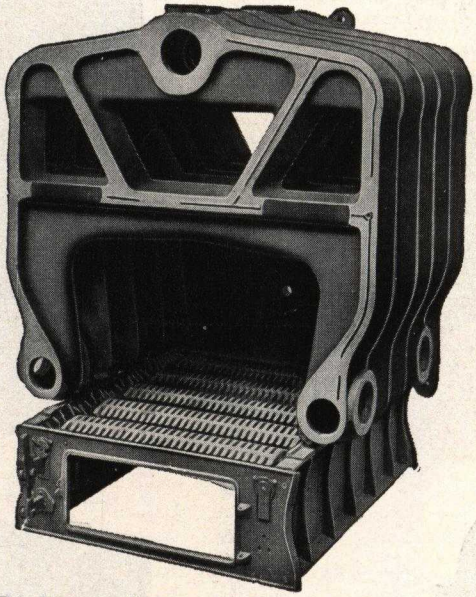
Water Boilers—Furnished with Thermometer, Altitude Gauge, Automatic Damper Regulator and firing tools.

BOILERS FOR OIL BURNING

Steam and Water—Trimmings and equipment furnished are same as corresponding Coal Burning Boiler except Oil Burning Boilers are shipped less Grate Bars, Grate Parts, Shaker Handle, Regulation, and Firing Tools, but Flue Brush is included.

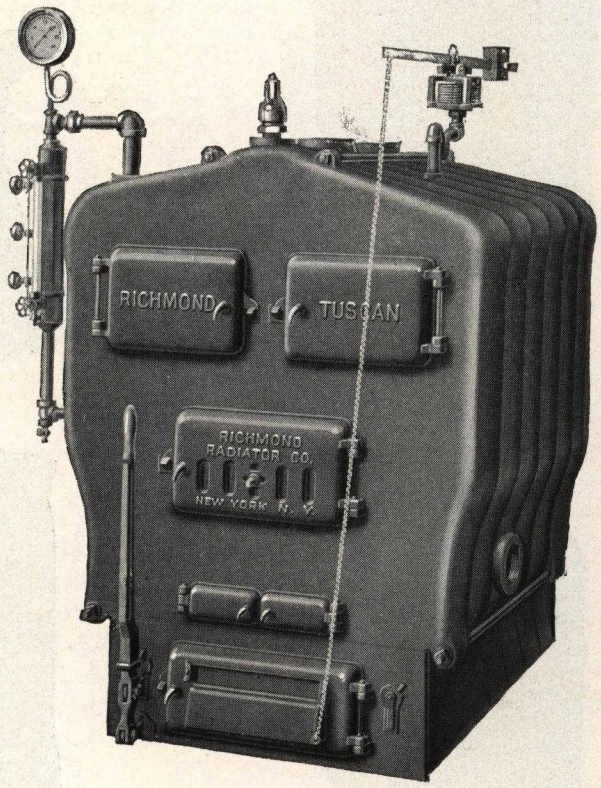
"RICHMOND"

Tuscan Sectional Boilers



Richmond Tuscan Sectional Boiler

This sectional view of the Sectional Boiler shows the large amount of direct fire surface. Small openings are provided between the sections directly over the fire, insuring burning of all gases. This is particularly important when burning soft coal, making the boiler practically self-cleaning. While the grates in the Sectional Boiler are constructed to allow a maximum free area, they permit the burning of all sizes and grades of fuel.



Richmond Tuscan Sectional Boilers—Capacities, Measurements, Tappings, Etc.

Steam and Water * Boiler Number	STEAM BOILER DATA			STEAM AND WATER BOILER DATA							WATER BOILER DATA	
	Recommended Load Sq. Ft. E. D. R. Steam See Note	Commercial Rating	Water Line Inches	Grate Width Inches	Grate Area Sq. Ft.	Size Tappings Inches Supply and Return	Height to Outlet Inches	Total Length Inches	Total Width Inches	Smoke Pipe Inches	Recommended Load Sq. Ft. E. D. R. Water See Note	Commerical Rating
8522	750	1450	45¼	22	4.75	2-4	53¼	54½	38	10	1200	2350
8622	900	1750	45¼	22	5.60	2-4	53¼	61½	38	10	1400	2750
8722	1050	2050	45¼	22	6.70	2-4	53¼	68½	38	10	1600	3150
8822	1200	2350	45¼	22	7.75	2-4	53¼	75½	38	10	1800	3550
8922	1350	2650	45¼	22	8.25	3-4	53¼	81½	38	10	2000	3950
8530	1000	2000	48¼	30	6.23	2-4	59	52½	49¼	14	1650	3250
8630	1250	2450	48¼	30	7.68	2-4	59	59½	49¼	14	2000	3950
8730	1500	2950	48¼	30	9.14	2-4	59	66½	49¼	14	2350	4650
8830	1750	3450	48¼	30	10.59	3-4	59	73½	49¼	14	2700	5350
8930	2000	3950	48¼	30	12.04	3-4	59	80½	49¼	14	3050	6050
8638	2400	4750	55¼	38	11.08	2-5	67¼	63½	58¼	16	4000	7950
8738	2900	5750	55¼	38	13.02	2-5	67¼	71½	58¼	16	4800	9550
8838	3400	6750	55¼	38	15.03	3-5	67¼	79½	58¼	16	5600	11150
8938	3900	7750	55¼	38	17.36	3-5	67¼	87½	58¼	16	6400	11750
1038	4400	8750	55¼	38	19.52	3-5	67¼	95½	58¼	16	7200	14350
1138	4900	9750	55¼	38	21.63	4-5	67¼	103½	58¼	16	8000	15550
1238	5400	10750	55¼	38	23.75	4-5	67¼	111½	58¼	16	8800	17450
1338	5900	11750	55¼	38	25.86	4-5	67¼	119½	58¼	16	9600	19150
1438	6400	12750	55¼	38	28.50	4-5	67¼	127½	58¼	16	10400	20750
1538	6900	13750	55¼	38	30.61	4-5	67¼	135½	58¼	16	11200	22350

NOTE—Deduct piping load from E. D. R. ratings to arrive at actual direct radiation boiler will carry. Allowance must also be made for Domestic Water Supply Coil or Auxiliary Heater and uncovered boiler and piping.
*In ordering for Oil Burning use prefix "O," viz., O8522S, O8522W, etc.

BOILERS FOR COAL BURNING

Steam Boilers—Furnished with Safety Valve, Water Gauge, Try Cocks, Retard Gauge, Automatic Damper Regulator and firing tools consisting of Hoe, Poker and Flue Brush.

Water Boilers—Furnished with firing tools only.

BOILERS FOR OIL BURNING

Steam—Trimmings and equipment furnished are same as corresponding Coal Burning Boiler except Oil Burning Boilers are shipped less Grate Bars, Grate Parts, Shaker Handle, Regulation, and Firing Tools, but Flue Brush is included.

Water—Are shipped less Grate Bars, Grate Parts, Shaker Handle and Firing Tools, but Flue Brush is included.

"RICHMOND"

Tuscan Hot Water Supply Boilers



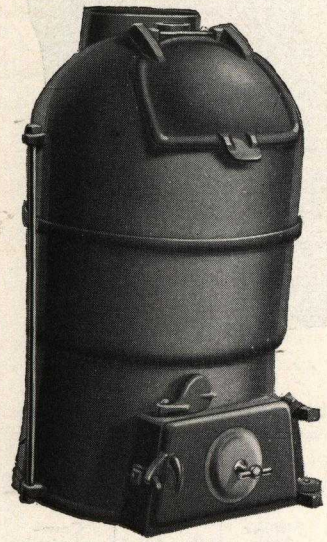
Without Fire Brick Lining
No. 40—Without Fire Ring
No. 50—With Fire Ring



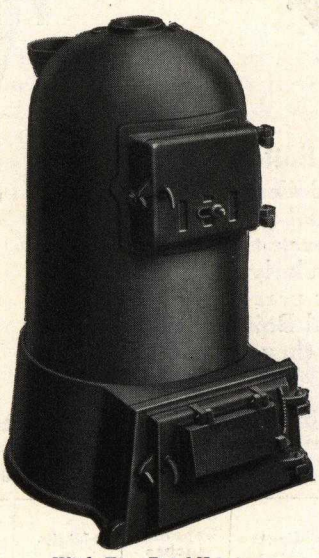
Laundry Heaters
No. 36, 38



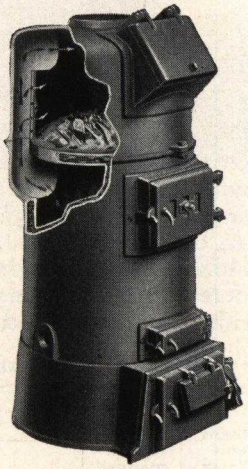
High Test Tank Heaters
Nos. 1833, 1834, 2033, 2034,
2233, 2234, 2533, 2534



With Fire Brick Lining
Nos. 65, 80



With Fire Brick Lining
Nos. 120, 148, 180



Combination
Garbage Burner and
Water Supply
Boiler No. 200

Hot Water Supply Boilers

No.	Actual Tank Capacity, Gallons	Diameter Grate, Inches	Tapping, Inches	Height, Inches	Smoke Pipe, Inches
40	40	10	1	18 7/8	5
50	50	10	1	19 3/4	5
65	65	10	1	20 3/4	5
80	80	10	1 1/4	27 3/8	5
120	150	12	2	29	6
148	300	14	2	35 7/8	7
180	500	17	2	41 7/8	7
1833	550	18	2 1/2	41 7/8	7
1834	650	18	2 1/2	46 7/8	7
2033	800	20	2 1/2	47 7/8	8
2034	900	20	2 1/2	52 7/8	8
2233	1000	22	3	48 3/4	9
2234	1100	22	3	53 7/8	9
2533	1200	25	3	50 5/8	9
2534	1400	25	3	55 7/8	9

NOTE: 1833, 2033, 2233, 2533 Tank heaters are assembled with base, firepot and round dome. 1834, 2034, 2234, 2534 have an intermediate section added to above.

Garbage Burners

No.	Actual Tank Capacity, Gallons	Diameter Grate, Inches	Tapping, Inches	Height, Inches	Smoke Pipe, Inches
200	200	14	1 1/2	42	7

Laundry Heaters

36	40	8	1	22	3
38	60	10	1	24	3

REGARDING PRESSURE

"Richmond" Tuscan Hot Water Supply Boilers are guaranteed for working pressure of 125 pounds per square inch.

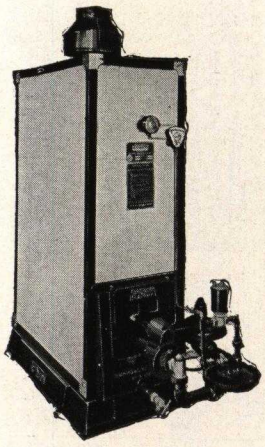
If the pressure of the water exceeds 125 pounds per square inch a pressure reducing valve and a relief valve set at 125 pounds or less must be installed in supply pipe.

The Garbage Burner not only disposes of large quantities of refuse but provides a liberal supply of hot water at minimum expense of fuel. The top chamber is of size to hold about one bushel of refuse.

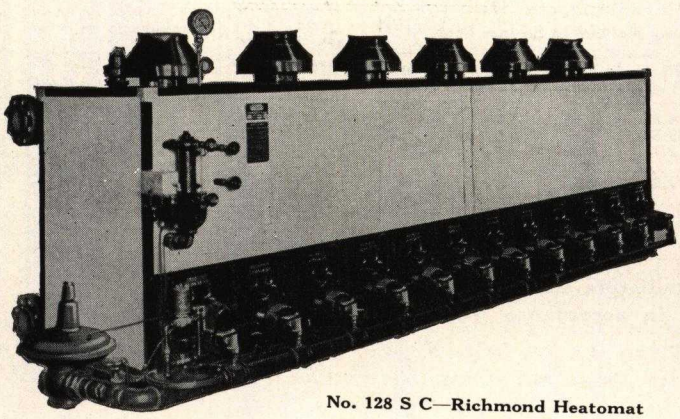
"RICHMOND"

Heatomat Gas Boiler

For Every Heating Need—For Hot Water—Steam and Vapor



No. 18 W C
Richmond Heatomat



No. 128 S C—Richmond Heatomat



No. 28 S T—DeLuxe
Richmond Heatomat

The Richmond Heatomat Gas Boiler incorporates the most advanced engineering practice, combining extreme simplicity with utmost efficiency.

The Richmond Heatomat is entirely automatic—A positive thermostat, centrally located in one of the rooms and connected to the Richmond Heatomat insures an even temperature during all kinds of weather. It burns gas most efficiently and produces Gas Heat most economically.

The deLuxe Heatomat Gas Boiler inspires the transformation of the boiler room into livable quarters.

The deLuxe Richmond Heatomat combines the highly efficient Richmond Heatomat with an outer enclosure of enameled lead-coated steel covering the insulation and the simple and dependable operating mechanism of the boiler. The enameled surface of the casing is finished in stippled silver on a black enameled background.

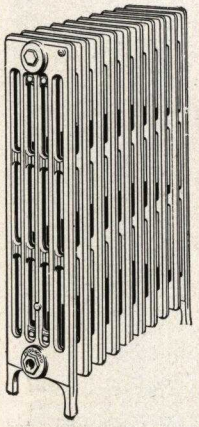
Tested and Approved by the American Gas Association

Richmond Heatomat Ratings and Dimensions

Boiler No.	B.T.U. Output	Boiler H. P.	A. G. A. Rating Square Feet		Circulation Mains		No. of Burners	Burner Capacity In. Cu. Ft. per Hr.		Size of Gas Supply		Flue Outlets Inches	Flue Size to Chimney Inches
			Steam	Water	Feed Inches	Return Inches		Mfd. Gas 500 B.T.U.	Nat. Gas 1000 B.T.U.	Mfrd. Gas Inches	Natural Gas Inches		
14	84,000	2.5	350	560	1–3	1–3	1	210	105	1	1	1–5	5
15	105,000	3.1	440	700	1–3	1–3	1	262	131	1	1	1–5	5
16	126,000	3.7	530	840	1–3	1–3	1	315	158	1	1	1–5	5
17	147,000	4.4	610	980	1–3	1–3	1	368	184	1¼	1	1–6	6
18	168,000	5.0	700	1,120	1–3	1–3	1	420	210	1¼	1	1–6	6
25	210,000	6.3	880	1,400	2–4	2–4	2	525	262	1½	1	1–7	7
26	252,000	7.5	1,050	1,680	2–4	2–4	2	630	315	1½	1	1–7	7
27	294,000	8.8	1,220	1,960	2–4	2–4	2	736	368	1½	1¼	1–8	8
28	336,000	10.0	1,400	2,240	2–4	2–4	2	840	420	1½	1¼	1–8	8
36	378,000	11.3	1,580	2,520	3–4	3–4	3	946	473	2	1½	2–7	9
37	441,000	13.2	1,840	2,940	3–4	3–4	3	1104	552	2	1½	2–7	9
38	504,000	15.1	2,100	3,360	3–4	3–4	3	1260	630	2	1½	2–7	10
47	588,000	17.5	2,450	3,920	3–4	3–4	4	1472	736	2	1½	2–8	10
48	672,000	20.1	2,800	4,480	3–4	3–4	4	1680	840	2	1½	2–8	12
57	735,000	22.0	3,060	4,900	3–4	3–4	5	1840	920	2½	2	3–7	12
58	840,000	25.1	3,500	5,600	3–4	3–4	5	2100	1050	2½	2	3–8	14
68	1,008,000	30.1	4,200	6,720	4–4	4–4	6	2520	1260	2½	2	3–8	14
78	1,176,000	35.1	4,900	7,840	4–4	4–4	7	2940	1470	2½	2	4–8	16
88	1,344,000	40.2	5,600	8,960	4–4	4–4	8	3360	1680	2½	2	4–8	16
98	1,512,000	45.2	6,300	10,080	5–4	5–4	9	3780	1890	3	2½	5–8	18
108	1,680,000	50.2	7,000	11,200	5–4	5–4	10	4200	2100	3	2½	5–8	18
118	1,848,000	55.3	7,700	12,320	5–4	5–4	11	4620	2310	3	2½	6–8	20
128	2,016,000	60.3	8,400	13,440	6–4	6–4	12	5040	2520	3	2½	6–8	20

"RICHMOND" Tube Radiators

For Steam, Water and Vapor



A masterpiece of design. Large heating surface and space between sections. No protruding surfaces.

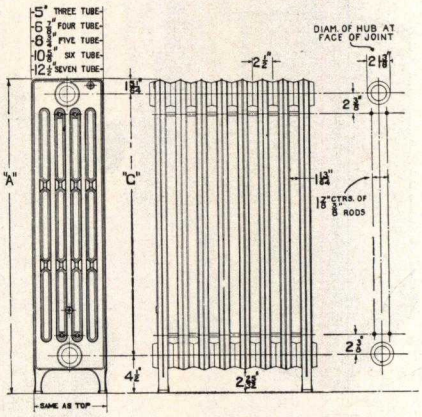
Made in Three, Four, Five, Six and Seven-Tube Widths; Each in Several Heights

Catalog Height Inches	Heating Surface in Square Feet					"A" Inches	"C" Inches	Number of Cross Bars
	Three Tube	Four Tube	Five Tube	Six Tube	Seven Tube			
38	3.33	4.25	5.00	6.00	7.00	37 3/16	30 57/64	2
32	2.75	3.50	4.33	5.00	.....	31 53/64	25 17/32	2
26	2.33	2.75	3.50	4.00	5.00	25 51/64	19 15/32	1
22	2.00	.....	3.00	.....	4.25	21 7/8	15 37/64	0
20	.....	2.25	2.66	3.00	3.75	20	13 43/64	0
18	.....	.....	2.50	.....	3.50	18 17/32	12 15/64	0
16	.....	.....	.....	.....	3.25	16 13/32	10 3/32	0
14	.....	.....	.....	.....	2.75	14 5/16	8 1/64	0

Richmond Radiators tested at Frost Laboratories, Norristown, Penna., in accordance with radiator testing code of A. S. H. & V. E.

RICHMOND TUBE RADIATION

PUSH NIPPLE CONSTRUCTION

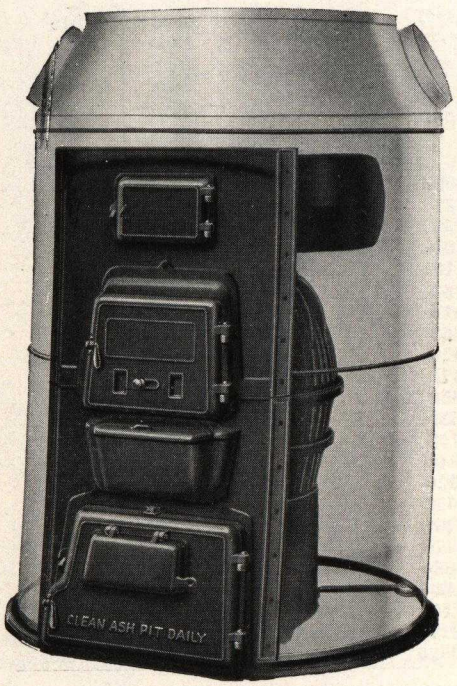


No. Section	Length Inches	3-Tube 38 Inches High		4-Tube 38 Inches High		5-Tube 38 Inches High		6-Tube 38 Inches High		7-Tube 38 Inches High	
		A	B	A	B	A	B	A	B	A	B
1	2½	3⅓	5.40	4¼	7.10	5	8.93	6	10.87	7	12.37
2	5	6⅔	8.79	8½	11.45	10	14.22	12	16.89	14	19.35
3	7½	10	12.17	12¾	15.80	15	19.51	18	22.91	21	26.36
4	10	13⅓	15.56	17	20.15	20	24.80	24	28.93	28	33.37
5	12½	16⅔	18.95	21¼	24.50	25	30.09	30	34.95	35	40.38
6	15	20	22.33	25½	28.85	30	35.38	36	40.97	42	47.39
7	17½	23⅓	25.72	29¾	33.20	35	40.68	42	46.99	49	54.40
8	20	26⅔	29.11	34	37.55	40	45.97	48	53.01	56	61.41
9	22½	30	32.50	38¼	41.90	45	51.26	54	59.03	63	68.42
10	25	33⅓	35.88	42½	46.25	50	56.50	60	65.05	70	75.43

In Column A are catalog ratings, given for comparison with ratings of manufacturers who do not publish performance tables.

In Column B are given our Guaranteed ratings equivalent surface at 240 B. t. u. square feet, at 1 pound steam pressure, radiator standing in still air 70 degrees at breathing point (5 feet above floor).

Richmond Tuscan Piped and Pipeless Furnaces



Richmond Tuscan Piped Furnace—Specifications

Stock Number	Diameter Fire Pot Inches	Diameter Casing Inches	Diameter Smoke Pipe Inches	Pipe Area	Height Less Casing Inches	Height With Casing Inches	Cubic Feet Capacity	Sq. Ft. Heating Surface
18-36	18	36	8	275	48	58	6,000	32
20-40	20	40	8	360	50	63	10,000	36
22-44	22	44	8	480	52	63	13,000	42
24-48	24	48	8	590	54	63	18,000	48
27-52	27	52	8	700	57	63	25,000	55

Richmond Tuscan Pipeless Furnace—Specifications

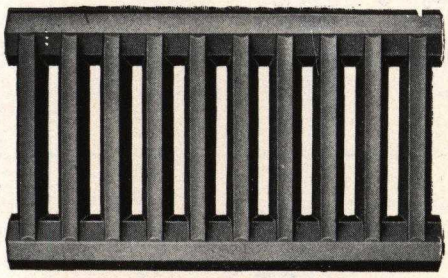
Stock Number	Diameter Fire Pot Inches	Diameter Inner Casing Inches	Diameter Outer Casing Inches	Height Less Casing Inches	Register Size Inches	Diameter Smoke Pipe Inches	Sq. Ft. Heating Surface	Cubic Feet Capacity
P18-40	18	32	40	48	25×25	8	32	6 to 9M
P20-44	20	36	44	50	28×28	8	36	10 to 16M
P22-48	22	40	48	52	30×30	8	42	13 to 18M
P24-52	24	44	52	54	34×34	8	48	17 to 20M
P27-56	27	48	56	57	36×36	8	55	25 to 35M

Richmond Tuscan 3 Way Pipeless Furnace—Specifications

Stock Number	Diameter Fire Pot Inches	Diameter Casing Inches	Height Less Casing Inches	Size Warm Air Pipe Inches	Size Cold Air Pipe Inches	Diameter Smoke Pipe Inches	Sq. Ft. Heating Surface	Cubic Feet Capacity
1380	18	36	48	18	2-14	8	32	6 to 8M
1320	20	40	50	20	2-14	8	36	8 to 11M
1322	22	44	52	22	2-16	8	42	11 to 15M
1324	24	48	54	24	2-18	9	48	15 to 18M
1327	27	52	56	26	2-18	9	55	20 to 30M

"RICHMOND" Radiators

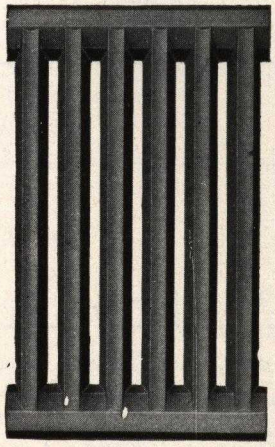
"Richmond" Wall Radiators



No. 70—Horizontal 7-foot Section
No. 90—Horizontal 9-foot Section

Rating and Measurements

No. Horizontal	No. Vertical	Height, Inches	Length or Width, Inches	Thickness, Inches	Heating Surface, Sq. Ft.
70	71	13 5/16	22 7/8	2 7/8	7
		22 7/8	13 5/16	2 7/8	7
90	91	13 5/16	29 1/16	2 7/8	9
		29 1/16	13 5/16	2 7/8	9



No. 71—Vertical 7-foot Section
No. 91—Vertical 9-foot Section

The regular tappings of "Richmond" Wall Radiators as shown below are indicated by A, B, C, D. A and B are left-hand tappings. C and D right-hand tappings. Nos. X1, X2, X3, X4 are special tappings that can be furnished when ordered, and extra charge being made. Nos. X1 and X4 are right-hand tappings. Nos. X2 and X3 left-hand tappings. When radiator is for water, air vent opening is at B.

When sections are assembled in tiers no extra charge will be made for X tappings. Tappings are 1½ inches supply and return and bushed as desired.

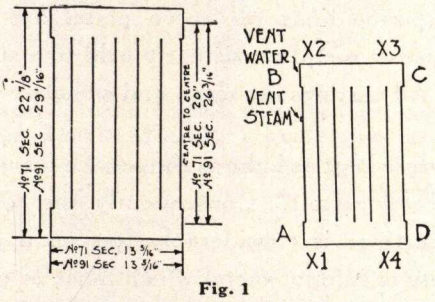


Fig. 1

Fig. 1—Section Nos. 71 and 91. For water and one and two-pipe steam.

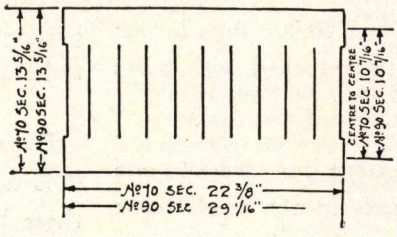
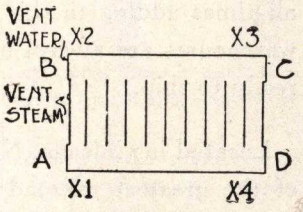


Fig. 2

Fig. 2—Section Nos. 70 and 90. For water and one and two-pipe steam.



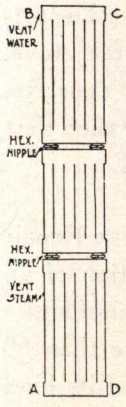


Fig. 3

Fig. 3—Section Nos. 71 and 91. Water and one and two-pipe steam.

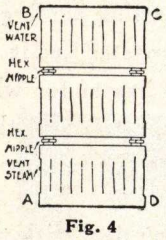


Fig. 4

Fig. 4—Section Nos. 70 and 90. Water and one and two-pipe steam.

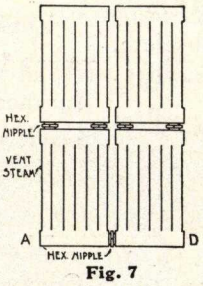


Fig. 7

Fig. 7—Section Nos. 71 or 91. One and two-pipe steam.

Fig. 8—Section Nos. 71 or 91. Water only.

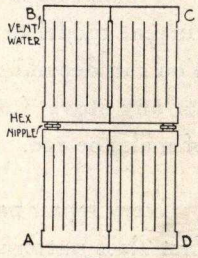


Fig. 8

Fig. 3 and 4—If more sections than shown are ordered, state whether they are to be added horizontally or vertically.

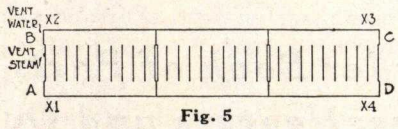


Fig. 5

Fig. 5—Section Nos. 70 or 90. Water and one and two-pipe steam.

Fig. 6—Section Nos. 71 or 91. Water and one and two-pipe steam.

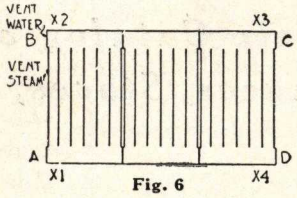


Fig. 6

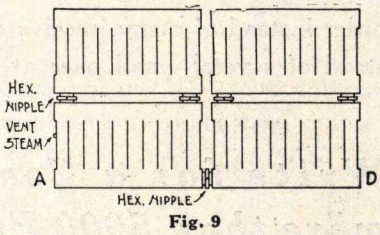


Fig. 9

Fig. 9—Section Nos. 70 or 90. One and two-pipe steam.

NORTHWESTERN STOVE REPAIR CO. CHICAGO, ILL.

General Offices—662 W. Roosevelt Road

Repair Parts for Any Boiler, Furnace or Heater

The dealer handling furnace, stove and boiler repair parts cannot afford to overlook any of the following factors:

You do not have to wait three or four weeks for the repair parts you order. Our Chicago foundries carry over 300,000 patterns and keep pattern makers busy at all times adding to this list. The 60,000 bins in our warehouses are always adequately stocked with parts ready to ship.

Located in Chicago, Northwestern has access to one of the greatest railroad terminals in the world—one that handles 34,800 cars a day and does not countenance delays.

It makes no difference whether you need a part for a current model or for one that has long been obsolete. You can depend on the prompt shipment of your order for any stove, furnace, boiler or heater part regardless of make or age.

Every repair part made in our foundries is made from first class pattern equipment and guaranteed to fit.

By dealing with one house for all your repair parts you make several important savings. You write one order instead of many, receive one large shipment instead of several small ones at different times. You get whatever advantage applies in better freight rates on the larger shipment. You pay the drayage on just one shipment instead of many, you check just one bill and you write just one check.

Our castings, which meet the United States War Department specifications for stove plate, are first grade heat resisting metal consistently held to a standard analysis. All castings are clean and smooth.

Every casting is kept as light as the service for which it is designed will permit. Consequently the cost of these better castings is considerably less on a piece basis than those of inferior metal which must be given greater weight.

Every casting passing through our Shipping Department has pasted on it a label that shows the stove, furnace or heater for which it is intended. Your Receiving Department is therefore able to route each part promptly to the job for which it was ordered.

When you deal with the Northwestern Stove Repair Company, you enjoy the complete cooperation of an organization which has specialized in the manufacture and prompt supply of repair parts for more than 60 years and which is now the largest concern of its kind in the country.

Write for a Complete Catalog and Order Book of Parts for more than 5000 Furnaces, Stoves, Boilers, Heaters and Ovens

THE SILENT GLOW OIL BURNER CORP. HARTFORD, CONN.

BRANCH OFFICES

Chicago, Ill.—228 N. La Salle Street

Boston, Mass.—790 Commonwealth Avenue

St. Paul, Minn.—1627 University Avenue

Member American Oil Burner Association, Inc.
Member Oil Heating Institute.

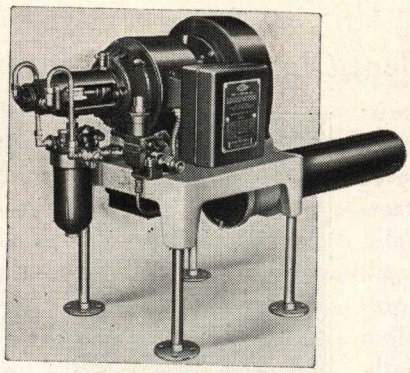
Member Distillate Burner Manufacturers Association.
Member National Electric Light Association.

SILENT GLOW
TRADE MARK REGISTERED U.S. PAT. OFF.
OIL BURNER

Silent Glow Model G Oil Burner

A pressure atomizing burner especially adapted for churches, schools, small apartment buildings, and the larger homes. Capable of handling up to 3000 sq. ft. of steam radiation or its equivalent and can be installed in the present heating system.

Equipped with the Stabilizor, an exclusive Silent Glow feature, insuring a stabilized flame, stabilized heat, quiet and efficient operation, freedom from accumulation of soot or carbon.



Silent Glow Model G

All metal parts are plated with glistening chromium. This and black and white vitreous enamel give Model G unsurpassed eye appeal. All parts are assembled and tested individually and as an operating unit at the factory. All material and parts used in the manufacture of the burner are of the highest grade in material, workmanship and finish. Armature in the motor and oil pump are the only moving parts.

Specifications

Motor—Is of the repulsion induction type, ¼ H.P.—110 volt—220 volt—1750 RPM and has a small current consumption.

Fan—Is of high grade aluminum, light, strong and accurately balanced, mounted on motor shaft with no intermediate connections, simple and quiet in operation.

Pump—Is a rotary type, self sealing, connected directly to motor shaft with flexible coupling. Very quiet operating and will lift oil from outside tank without priming.

Nozzle—Is of the latest design and will atomize 28-30° Baume', known as No. 3 C.S.G., or lighter oils with a fog-like spray.

Electric Ignition—Two pole ignition transformer is used with sufficient voltage to assure enough heat to ignite and start combustion with a wide range of fuel oils.

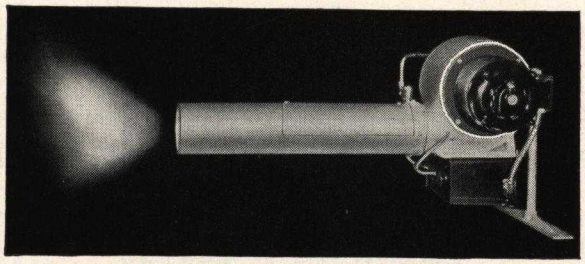
Fuel Supply—Optional as to connection to either gravity from above ground storage tank or direct from underground storage tank.

Controls—Standard controls are furnished with burner.

Strainers—Equipped with oil strainers of ample capacity to remove dirt and sediment from oil.

Listed as Standard by the Underwriters Laboratories

Silent Glow Model 1000 Oil Burner



Silent Glow Model 1000

This exceptionally attractive and efficient pressure atomizing burner is especially adapted for heating the average size home. Capacity 1000 sq. ft. of steam radiation or its equivalent.

The stabilized flame produces combustion in suspension without any tendency to "float"—permits the fullest utilization of the fuel and assures the highest possible efficiency and quietness. No baffles or other special changes are necessary in the fire box to prevent "floating flame" and its attendant difficulties.

Cadmium plating adds to its attractiveness and prevents rust and corrosion. The silver gray finish of the cadmium plated parts is strikingly set off by the black lacquer finish of the motor and air adjusting assembly.

Continued on following page

Specifications for Silent Glow Model 1000

Continued from preceding page

Motor—Split phase, 1-6 H.P., 110 volt, 1750 RPM with small current consumption.

Fan—Latest type, fabricated aluminum, weighing only 17 ounces, strong and accurately balanced, mounted on motor shaft with no intermediate connections, simple and quiet in operation.

Pump—Rotary type, connected directly to motor shaft with flexible coupling. Very quiet and will lift oil from tank below burner level without priming.

Nozzle—Latest design and will atomize 28-30° Baume', known as No. 3 C.S.G., or lighter oils with a fog-like spray.

Electric Ignition—Two pole ignition transformer is used with sufficient voltage to assure enough heat to ignite and start combustion with a wide range of fuel oils. Entire electric ignition system is tested for a maximum voltage breakdown of 20,000 volts.

Controls—Standard controls are furnished with the burner.

Strainers—A series of three strainers is used with ample capacity to remove dirt and sediment from the oil.

Fuel Supply—Optional as to connection to either gravity from basement, tank above floor, or direct from underground storage tank.

Listed as Standard by the Underwriters Laboratories

Silent Glow Rotary Oil Burner

This wall flame rotary burner is for use in the smaller homes where steam radiation requirements, or its equivalent in Hot Water or Hot Air, do not exceed 400 square feet. It is simple and rugged in construction and efficient in operation. Uses No. 2 C.S.G. oil.

The oil is mixed with the proper proportion of air, and is thrown from a rotating head over a hearth plate against specially designed refractory grills where it burns with a gaseous blue flame. The complete burner installation is within the furnace with the exception of a small panel, on which the automatic controls are assembled.



Model S-3-B

Specifications

Motor—1-20 H.P., 1750 RPM, high efficiency, sleeve bearing vertical motor with ball bearing end thrust. Electrical in-put is approximately 65 watts. Motor is equipped with extra large wool packed sleeve bearings and is furnished for 110 volts, 60 cycles only.

Ignition—Gas ignition only is furnished and is of the expanding gas pilot type, automatically expanded by a magnetic valve.

Oil Valves—The dual solenoid oil valve, mounted on a Control Panel, is provided with an integral adjustment valve for regulating the oil volume. It is also provided with an integral strainer for the protection of the valve seats and adjustment valve.

Gas Valve—Is rigidly mounted on the control panel and provides an expanded gas flame at the pilot during ignition period of the burner and reduces it to a low flame while the burner is in operation and while the burner is "off."

Controls—Standard controls are furnished with the burner.

Construction—Consists of two units, the burner unit and the panel board. The finest grades of material and the highest quality of workmanship is maintained throughout. All parts are carefully machined and tested during process of manufacturing and after assembling.

Listed as Standard by the Underwriters Laboratories

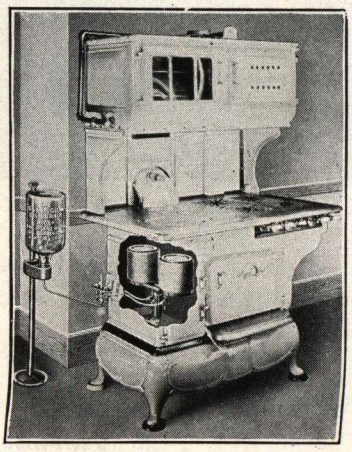
Silent Glow Burners for Stoves and Ranges

Range Burners

These burners are particularly designed to give excellent service and low operating costs for kitchen ranges.

The Silent Glow Range Burner has the cadmium plated base which insures an even flow of oil, faster heating of shells, decreased necessity for cleaning.

The exclusive, patented cadmium plated Self Cleaning Oil Feeds, the Super Heater, the Deflector Rings, the Microfeed Valve and the Oil Reservoir with the Reversflo Filter and the Reddylite are exclusive features only found on Silent Glow Burners.



Kitchen Range Burner

The Silent Glow Kitchen Range Burner Is Tested and Approved by Good Housekeeping Institute.

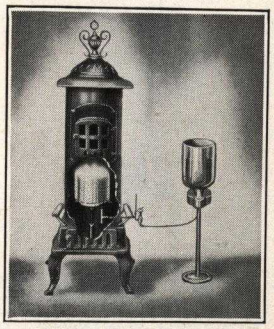
Model W consists of two 6" round burners fed from one 2 gallon bottle. Burner dimensions, 6⅝"x 14½". Regular Range Burner.

Model 8W consists of two 8" round burners and is fed from two 3 gallon bottles. Burner dimensions, 8⅝" x 17⅝". Model 8W can also be equipped for tank feed.

Listed as Standard by the Underwriters Laboratories

Silent Glow Oil Burners for Stoves and Ranges

Parlor Stove Burners



Parlor Stove Burners

High grade and efficient burners for use in parlor stoves, water heaters, etc., are furnished in three models.—6B-8BS-10BS.

Model 6B is a 6" round burner that is fed from a two gallon bottle. Has a single valve control. Burner dimensions, 6⅝"x6⅝".

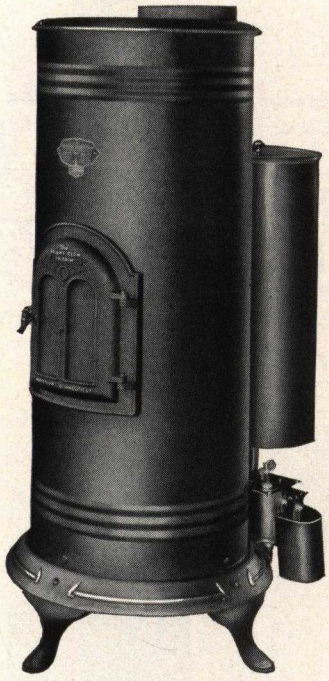
Model 8BS is an 8" round burner that is fed from a three gallon bottle. Has 3 grooves of fire and single valve control. Burner dimensions, 8⅝"x8⅝".

Model 10BS is a 10" round burner with a 3 gallon bottle, single valve control and 3 grooves of fire. Burner dimensions, 10¼"x10¼". These burners can also be equipped for tank feed.

Silent Glow Pilgrim Heaters



Pilgrim Cabinet Heater Model 601



Pilgrim Heater Model 701

The Pilgrim Space Heaters have a pot type burner, which is an integral part of the heating stove, particularly adaptable to space heaters. They are all scientifically designed to give efficient, controlled heat. Each one comes complete with a draft regulator and ready for installation. They use distillate which is inexpensive and easily obtainable. All parts are guaranteed for one year against defects in workmanship and material.

These heaters are, of course, equipped with burners of ample capacity to supply an abundance of heat for their stated ratings.

Model 701 is adapted for use in filling stations, camps, garages, offices, etc. It is sturdily constructed and can be easily transported and set up wherever needed. Operates with three lengths of stove pipe. Capable of heating up to 3500 cubic feet in zero weather.

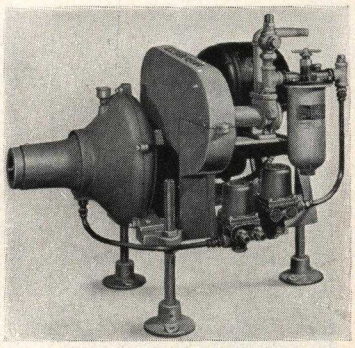
Model 601 is a beautifully finished cabinet heater with a full grain natural walnut finish. It harmonizes with the other furnishings in the room and its skillfully concealed 10 gallon storage tank assures a plentiful fuel supply. Easily set up and operated. Has a capacity of 5000 cubic feet.

Model 631, same as Model 601, but with a capacity of 7000 cubic feet.

Listed as Standard by the Underwriters Laboratories

Silent Glow Mid-West Burners

The Silent Glow Mid-West line consists of six different models, all of the horizontal rotary cup-type capable of handling all Industrial and Commercial requirements up to 20,000 square feet of steam. This line is designed to burn automatically fuel as low as No. 5 (18-20 Baume' Gravity) without preheating. Atomization is developed through a centrifugal cup, revolving at a speed of 3450 R.P.M. Oil is fed under a low pressure, normally 6 to 20 pounds, depending upon the grade and quantity of oil burned. Gas ignition is standard, although electric ignition is available for domestic burners for use in territories where gas is not available. Burners are provided for fully automatic operation, semi-automatic or high-low operation and manual control operation.



Silent Glow Mid-West Models 108 and 128

The Silent Glow Mid-West line is listed as standard by the Laboratories of the National Board of Fire Underwriters.

AUTOMATIC FLORZONE HEATING CO. INC. CONSHOHOCKEN, PENNA.

MANUFACTURERS OF

Florzone Radiators and New-Day Boilers

Florzone Radiators

FLORZONE Radiators are designed for use with water, one pipe steam, vapor and vacuum systems. There is no core sand to obstruct and clog



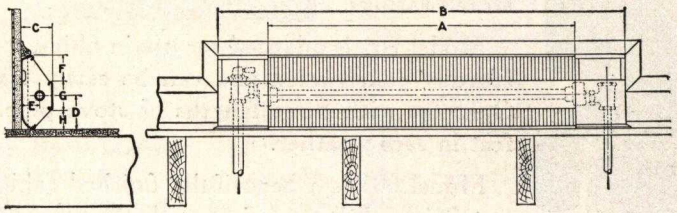
up valve seats. This radiator can be attached to the baseboard, recessed to the stud line or plaster line, or fully recessed.

Florzone Radiator Ratings

	Steel Fin		Copper Fin
	Single Tier	Double Tier	Single Tier
18" Section, 4" Fin, 1" Pipe	13 sq. ft.	23 sq. ft.	19 sq. ft.
27" Section, 4" Fin, 1" Pipe	19½ sq. ft.	35 sq. ft.	28½ sq. ft.
36" Section, 4" Fin, 1" Pipe	26 sq. ft.	46 sq. ft.	38 sq. ft.

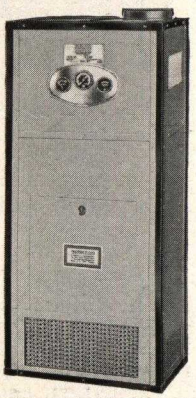
Installation Details (Inches)

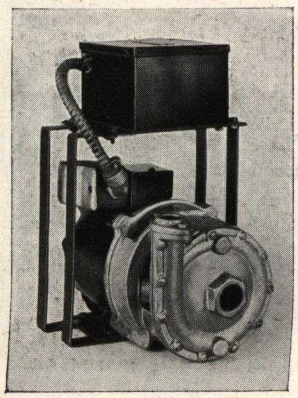
C-4 1/16
D-4 1/2
E-2
F-3 1/16
G-3 3/16
H-2 3/4
J-1/2



New-Day Gas Fired Boiler and Aqua-Force Heating System

An automatically controlled system of forced hot water heating combining the New-Day Boiler and Florzone Radiators, requiring only small size piping. Is fully automatic with all controls and automatic pump built inside the boiler. The New-Day Boiler measures 21"x22"x45". Gas and water connections are 1¼".





The Aqua-Force Pumping Unit

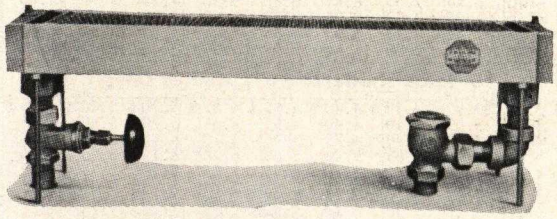
Where it is not practical to install a gas boiler our automatically controlled, forced hot water heating system, including Florzone Radiators and Pumping Unit can be used with any coal or oil fired boiler.

ERSKINE COPPER RADIATOR CORP. NEW YORK, N. Y.

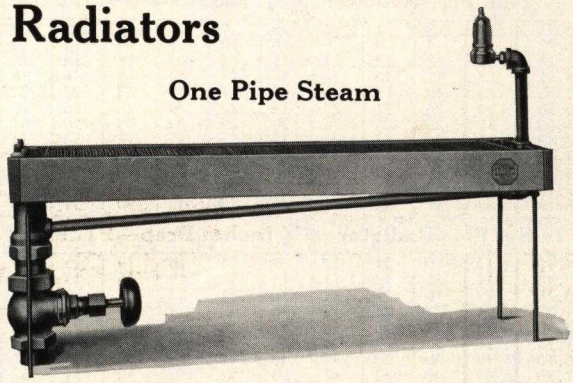
General Offices—1 East 42nd Street
Branches: Boston—Chicago—Philadelphia—Washington
Representatives in Principal Cities

Erskine Copper Radiators

2 Pipe Steam or Vapor



One Pipe Steam



Erskine Copper Radiators are constructed on the principle of forcing by great stress two separate bodies of copper together to a degree exceeded only by homogenity itself.

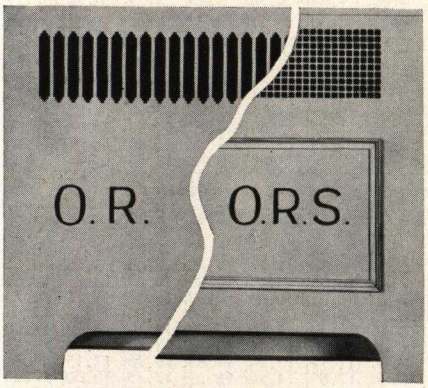
This process assures a radiator of high condensation efficiency, of great strength, of exceptional durability, of light weight and one that requires but little space.

Complete units have been subjected to efficiency and breakdown tests of the severest character and the results of these tests have been most gratifying.

Ratings used in this catalogue are on an effective heating basis arrived at after an exhaustive series of tests. Actual condensation ratings are available upon request.

See following pages for ratings, prices and other data.

Standard Recessed and Free Standing Enclosures for Erskine Copper Radiators



Metal Front

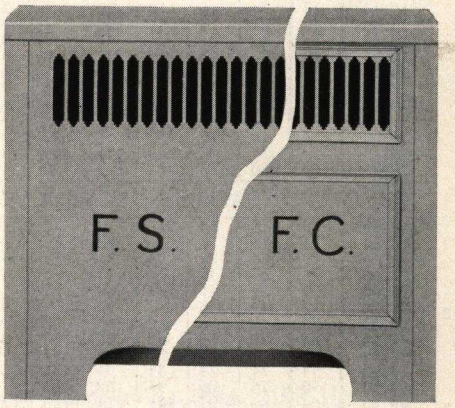
All metal front cabinets have the entire front removable to permit of easy access for control or for cleaning.

Dampers can be furnished and are recommended to supplement valve control and not as a substitute for same.

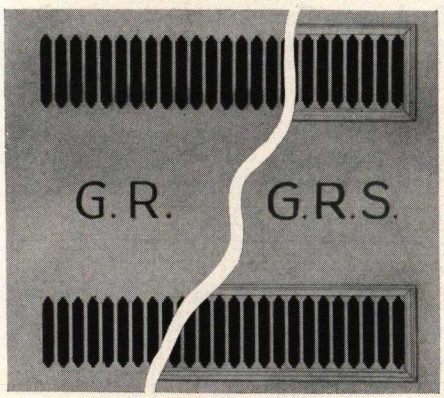
Access doors are furnished, if specified, at a slight extra cost.

Free standing cabinets can be furnished with grill in either top or front.

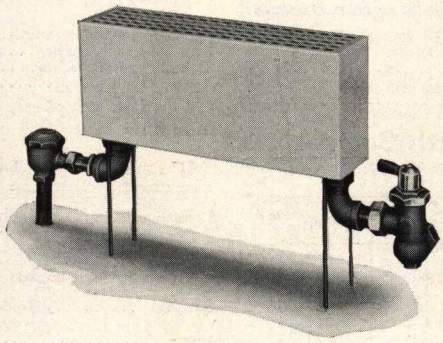
Fronts are regularly furnished in prime coat for later painting in any desired color. Enamel or wood grain can be furnished at an additional cost.



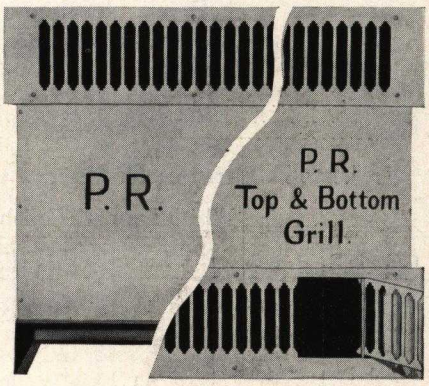
Free Standing



Metal Front



Bathroom Unit



Plaster Front

Effective Heating Output—Steam

Steam 215°—Room 70°

1 Sq. Ft. — 240 B. T. U. per hour

List Price	Length, Inches	Enclosure Heights 16	18	20	24	26	30	34	36	40	50
Sq. Ft.—Radiator—3½ Inches Deep—2 Tubes											
$ 6.75	12	8	8	8	8	9	9	9	9	9	9
6.75	14	9	9	9	10	10	10	10	10	10	10
7.70	19	12	12	13	13	13	14	14	14	14	14
8.55	24	15	16	16	17	17	18	18	18	18	18
9.55	29	17	18	19	20	21	22	22	22	22	22
10.50	34	20	21	23	24	25	26	26	26	26	26
11.50	39	23	25	26	28	29	29	30	30	31	31
12.40	44	26	27	29	31	32	33	34	34	34	34
13.40	49	28	30	32	35	36	37	38	38	39	39
14.30	54	31	33	36	39	40	42	42	42	43	43
15.15	59	34	37	39	42	43	45	46	47	47	47
16.10	64	37	40	42	46	48	49	50	51	51	51
Sq. Ft.—Radiator—5½ Inches Deep—3 Tubes											
$ 9.40	12	10	11	12	13	13	14	14	15	15	15
9.40	14	11	12	13	14	15	16	16	17	17	17
10.75	19	16	17	19	20	21	22	23	23	23	24
11.90	24	22	23	24	26	28	29	29	30	30	30
13.30	29	26	28	30	32	33	36	36	37	37	37
14.75	34	31	33	36	38	40	42	43	43	44	44
16.10	39	36	39	42	44	46	48	50	50	51	51
17.30	44	40	44	47	50	52	55	56	57	57	58
18.55	49	45	49	53	56	58	61	63	64	65	65
19.90	54	50	54	58	62	65	68	69	71	71	72
21.25	59	55	59	63	68	71	74	76	78	78	78
22.60	64	59	65	69	74	77	81	83	84	85	85
Sq. Ft.—Radiator—7½ Inches Deep—4 Tubes											
$12.35	12	11	12	13	15	17	18	19	20	21	22
12.35	14	13	14	15	17	18	20	21	21	22	23
14.05	19	19	21	22	25	26	28	30	30	31	31
15.70	24	25	28	30	32	34	36	38	39	40	41
17.45	29	31	34	37	40	42	45	46	47	49	50
19.45	34	37	41	44	47	50	53	55	56	58	59
21.25	39	43	48	51	55	58	61	64	65	67	68
22.90	44	49	54	59	62	66	70	72	74	76	77
24.60	49	55	61	66	70	73	77	80	82	85	86
26.25	54	61	67	72	77	81	86	89	91	94	96
27.80	59	66	73	79	84	89	93	98	101	103	105
29.45	64	72	80	86	92	96	102	106	109	112	114
Sq. Ft.—Radiator—9⅛ Inches Deep—5 Tubes											
$16.15	12	13	14	16	18	20	21	22	23	24	25
16.15	14	14	16	18	20	21	23	24	25	26	27
18.40	19	21	23	25	29	31	32	34	35	37	38
20.45	24	28	31	34	37	39	42	44	46	48	50
22.85	29	34	38	42	45	48	51	54	57	59	61
25.25	34	41	45	50	53	57	61	64	67	70	73
27.55	39	48	53	57	62	66	71	75	78	81	84
29.70	44	54	60	65	70	75	80	86	88	92	95
31.90	49	61	67	73	79	84	90	95	99	102	107
34.20	54	68	75	80	87	92	99	104	109	113	118
36.40	59	74	82	88	95	101	108	114	120	124	129
38.70	64	80	88	95	103	110	119	124	130	135	140
Sq. Ft.—Radiator—11⅛ Inches Deep—6 Tubes											
$18.80	12	13	14	17	19	22	24	25	27	28	29
18.80	14	14	17	19	22	24	26	27	29	30	31
21.50	19	21	25	28	31	33	36	39	40	43	45
23.80	24	28	33	36	40	43	47	50	52	56	58
26.60	29	36	41	44	49	53	57	62	64	68	71
29.50	34	43	48	53	58	63	68	73	77	81	85
32.10	39	50	56	61	67	72	78	84	89	94	99
34.60	44	57	64	69	76	82	88	95	100	106	112
37.10	49	64	71	77	85	91	99	106	112	119	126
39.80	54	71	79	85	93	101	109	117	124	132	140
42.50	59	78	86	93	102	110	119	128	136	145	153
45.20	64	84	93	101	111	120	129	139	148	157	167

Add 5% to above prices for One Pipe Steam Radiators.

Enclosure List Prices
Plain Fronts—Types OR—GR—PR—FS

(See extra list for Panel Moulding Prices)

Length, Inches	Enclosure Heights 16	18	20	24	26	30	34	36	40	50
2-Tube Radiator—3¾ Inches Deep										
13	$ 3.55	$ 3.65	$ 3.85	$ 4.20	$ 4.30	$ 4.65	$ 4.95	$ 5.20	$ 5.65	$ 6.40
16	3.55	3.65	3.85	4.20	4.30	4.65	4.95	5.20	5.65	6.40
20	3.75	4.00	4.20	4.55	4.75	5.20	5.65	5.85	6.20	7.40
25	4.20	4.40	4.65	5.20	5.40	5.95	6.40	6.60	7.30	8.80
31	4.65	4.85	5.20	5.85	6.10	6.75	7.40	7.85	8.50	10.45
36	4.95	5.30	5.65	6.40	6.60	7.50	8.25	8.80	9.70	11.90
40	5.30	5.85	6.10	6.85	7.30	8.15	9.15	9.70	10.20	13.10
45	5.65	6.10	6.50	7.60	7.95	9.15	10.25	10.80	12.00	14.40
50	6.10	6.50	7.05	8.25	8.80	9.90	11.25	11.90	13.00	15.75
55	6.50	6.95	7.70	8.95	9.80	10.90	12.35	13.00	14.10	17.20
61	7.05	7.70	8.25	9.90	10.80	12.00	13.55	14.20	15.65	18.80
65	7.40	7.95	8.80	10.60	11.35	12.90	14.10	14.75	16.16	19.50
3-Tube Radiator—5¾ Inches Deep										
13	$ 3.75	$3.85	$ 4.10	$ 4.40	$ 4.55	$ 4.85	$ 5.20	$ 5.40	$ 5.85	$ 6.75
16	3.75	3.85	4.10	4.40	4.55	4.85	5.20	5.40	5.85	6.75
20	4.00	4.20	4.40	4.75	4.95	5.40	5.85	6.05	6.50	7.70
25	4.40	4.65	4.85	5.40	5.65	6.20	6.75	6.95	7.60	9.25
31	4.85	5.10	5.40	6.10	6.40	7.05	7.70	8.15	8.95	11.00
36	5.20	5.50	5.85	6.75	6.95	7.85	8.70	9.25	10.15	12.55
40	5.50	6.10	6.30	7.20	7.60	8.60	9.60	10.15	11.25	13.75
45	5.95	6.40	6.85	7.95	8.40	9.60	10.70	11.35	12.55	15.20
50	6.40	6.85	7.40	8.70	9.25	10.45	11.80	12.45	13.65	16.50
55	6.85	7.30	8.05	9.35	10.15	11.45	12.90	13.65	14.85	18.05
61	7.40	8.05	8.70	10.35	11.15	12.55	14.20	14.85	16.40	19.80
65	7.70	8.40	9.25	11.11	11.90	13.55	14.75	15.55	16.95	20.45
4-Tube Radiator—7¾ Inches Deep										
13	$ 4.00	$ 4.10	$ 4.30	$ 4.65	$ 4.75	$ 5.10	$ 5.40	$ 5.65	$ 6.20	$ 7.50
16	4.00	4.10	4.30	4.65	4.75	5.10	5.40	5.65	6.20	7.50
20	4.20	4.40	4.65	4.95	5.20	5.65	6.20	6.40	6.85	8.15
25	4.65	4.85	5.10	5.75	6.00	6.50	7.05	7.30	7.95	9.70
31	5.10	5.30	5.65	6.40	6.75	7.40	8.15	8.60	9.35	11.60
36	5.40	5.85	6.20	7.05	7.30	8.25	9.15	9.70	10.70	13.20
40	5.85	6.40	6.60	7.50	8.05	9.05	10.05	10.70	11.80	14.45
45	6.30	6.75	7.20	8.40	8.80	10.05	11.25	11.90	13.20	15.96
50	6.75	7.20	7.70	9.15	9.90	11.00	12.35	13.10	14.35	17.40
55	7.20	7.60	8.50	9.80	10.70	12.00	13.55	14.35	15.65	18.95
61	7.70	8.50	9.15	10.90	11.70	13.20	14.85	15.65	17.30	20.80
65	8.15	8.80	9.70	11.70	12.55	14.20	15.55	16.30	17.85	21.45
5-Tube Radiator—9⅜ Inches Deep										
13	$ 4.05	$ 4.30	$ 4.50	$ 4.85	$ 4.95	$ 5.30	$ 5.60	$ 5.95	$ 6.50	$ 7.95
16	4.05	4.30	4.50	4.85	4.95	5.30	5.60	5.95	6.50	7.95
20	4.40	4.60	4.85	5.15	5.50	5.95	6.40	6.70	7.15	8.60
25	4.85	5.05	5.30	5.95	6.15	6.80	7.40	7.60	8.25	10.10
31	5.30	5.60	5.95	6.70	7.05	7.70	8.50	9.05	9.80	12.10
36	5.70	6.05	6.40	7.40	7.60	8.60	9.55	10.10	11.20	13.85
40	6.00	6.70	6.95	7.90	8.35	9.45	10.45	11.20	12.30	15.10
45	6.60	7.05	7.50	8.70	9.25	10.55	11.80	12.45	13.90	16.75
50	7.05	7.50	8.15	9.55	10.10	11.55	12.90	13.75	14.95	18.25
55	7.50	8.05	8.80	10.35	11.20	12.55	14.20	14.95	16.40	19.80
61	8.15	8.80	9.55	11.45	12.20	13.85	15.50	16.40	18.05	21.80
65	8.45	9.25	10.25	12.20	13.10	14.95	16.30	17.05	18.70	22.40
6-Tube Radiator—11⅜ Inches Deep										
13	$ 4.40	$ 4.50	$ 4.75	$ 5.05	$ 5.15	$ 5.60	$ 5.95	$ 6.15	$ 6.80	$ 8.25
16	4.40	4.50	4.75	5.05	5.15	5.60	5.95	6.15	6.80	8.25
20	4.60	4.85	5.05	5.40	5.70	6.15	6.80	7.05	7.50	8.90
25	5.05	5.30	5.60	6.25	6.50	7.15	7.70	8.05	8.70	10.65
31	5.60	5.85	6.15	7.05	7.35	8.15	8.90	9.45	10.25	12.65
36	5.95	6.40	6.80	7.70	8.05	9.00	10.00	10.65	11.75	14.50
40	6.40	7.05	7.25	8.25	8.80	9.90	11.00	11.80	13.00	15.85
45	6.95	7.35	7.80	9.25	9.70	11.00	12.30	13.10	14.50	17.50
50	7.35	7.80	8.45	10.00	10.70	12.10	13.55	14.40	15.75	19.15
55	7.80	8.35	9.35	10.80	11.75	13.20	14.85	15.75	17.15	20.80
61	8.45	9.35	10.00	12.00	12.85	14.50	16.25	17.15	19.00	22.90
65	8.90	9.70	10.65	12.85	13.75	15.60	17.05	17.95	19.60	23.60

Brass Headers

If brass headers are used on standard sizes there will be an extra charge, as follows:

	List		List
2-Tube	$1.05	5-Tube	$2.70
3-Tube	1.75	6-Tube	2.70
4-Tube	1.90		

Erskine Bathroom Radiators with Cabinet

White Enamel Finish

Radiator	Length	Width	Height	Footage	Price
212	12½	3¾	6	8	$ 9.25
214	14½	3¾	6	10	9.50
219	19½	3¾	6	13	11.00
224	24½	3¾	6	16	12.00
319	19½	5¾	6	19	14.25
324	24½	5¾	6	24	15.75

Prices on Radiators are F. O. B. Waterbury, Conn.

Enclosure Extras

For panel fronts with moulding, add $2.75 each to list prices.

Damper List Prices

Up to 25 inches in length	$2.20 each
26 inches to 40 inches	2.75 each
41 inches to 60 inches	3.30 each
Access Doors	1.00 each

For list prices of **panel front only** without metal lining or moulding take 50% off the 5¾-inch deep complete enclosure

List Prices Grilles Only

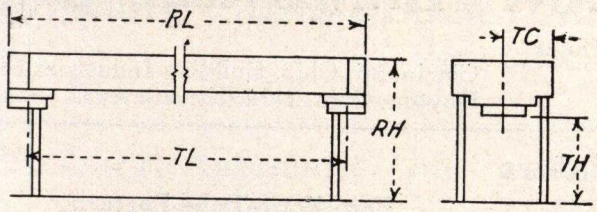
Length.....Inches	15	18	22	27	33	38
List	$1.75	$2.00	$2.00	$2.50	$2.50	$2.75

Length.....Inches	42	47	52	57	63	67
List	$3.00	$3.00	$3.25	$3.50	$3.75	$4.00

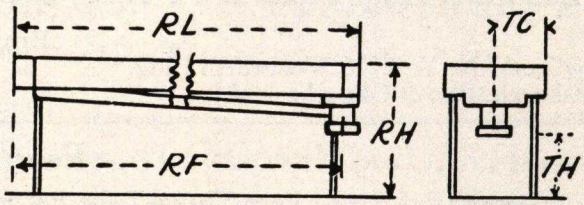
Prices on Enclosures, F. O. B. Brooklyn, N. Y., or Aurora, Ill.

For Erskine Copper Water Heaters See Page 681

Two Pipe Steam or Vapor

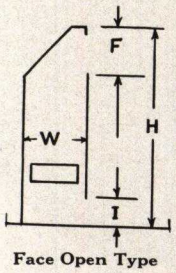


One Pipe Steam



Radiator Depth Inches	Two Pipe Radiator Lengths—R. L.—Inches											
	12	14	19	24	29	34	39	44	49	54	59	64
	Tapping Lengths—T. L.—Inches											
3 9/16	10 3/8	12 3/8	17 3/8	22 3/8	27 3/8	32 3/8	37 3/8	42 3/8	47 3/8	52 3/8	57 3/8	62 3/8
5 9/16	10 5/16	12 5/16	17 5/16	22 5/16	27 5/16	32 5/16	37 5/16	42 5/16	47 5/16	52 5/16	57 5/16	62 5/16
7 9/16	9 13/16	11 13/16	16 13/16	21 13/16	26 13/16	31 13/16	36 13/16	41 13/16	46 13/16	51 13/16	56 13/16	61 13/16
9 1/8	9 5/8	11 5/8	16 5/8	21 5/8	26 5/8	31 5/8	36 5/8	41 5/8	46 5/8	51 5/8	56 5/8	61 5/8
11 1/8	9 5/8	11 5/8	16 5/8	21 5/8	26 5/8	31 5/8	36 5/8	41 5/8	46 5/8	51 5/8	56 5/8	61 5/8
RH	8" for 3 9/16" Radiator Depth. 8 1/4" for 5 9/16", 8 1/2" for 7 9/16", 8 3/4" for 9 1/8" and 9" for 11 1/8".											
TH	4 7/16" for 3 9/16" Radiator Depth. 5" for 5 9/16", 5 1/2" for 7 9/16", 6" for 9 1/8" and 6" for 11 1/8".											
TC	As tappings are on center of Radiator, this dimension will be exactly one-half the depth of Radiator.											
Tapping Sizes	3/4" for 3 9/16" Radiator Depth. 1" for 5 9/16", 1 1/4" for 7 9/16", 1 1/2" for 9 1/8" and 11 1/8" Radiators.											

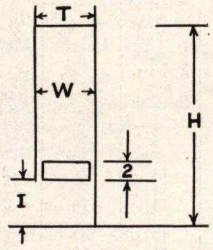
Radiator Depth Inches	One Pipe Radiator Lengths—R. L.—Inches											
	12	14	19	24	29	34	39	44	49	54	59	64
	Tapping Lengths—R. F.—Inches											
3 9/16	11 3/32	13 3/32	18 3/32	23 3/32	28 3/32	33 3/32	38 3/32	43 3/32	48 3/32	53 3/32	58 3/32	63 3/32
5 9/16	10 15/16	13 15/16	18 15/16	23 15/16	28 15/16	33 15/16	38 15/16	43 15/16	48 15/16	53 15/16	58 15/16	63 15/16
7 9/16	10 23/32	13 23/32	18 23/32	23 23/32	28 23/32	33 23/32	38 23/32	43 23/32	48 23/32	53 23/32	58 23/32	63 23/32
9 1/8	10 1/2	13 1/2	18 1/2	23 1/2	28 1/2	33 1/2	38 1/2	43 1/2	48 1/2	53 1/2	58 1/2	63 1/2
11 1/8	10 1/2	13 1/2	18 1/2	23 1/2	28 1/2	33 1/2	38 1/2	43 1/2	48 1/2	53 1/2	58 1/2	63 1/2
RH	10 1/8" for 3 9/16" Radiator Depth. 10 1/2" for 5 9/16" and 7 9/16". 10 7/8" for 9 1/8" and 11 1/8".											
TH	4 7/16" for 3 9/16" Radiator Depth. 5" for 5 9/16", 5 1/2" for 7 9/16", 6" for 9 1/8" and 6" for 11 1/8".											
TC	As tappings are on center of Radiator, this dimension will be exactly one-half the depth of Radiator.											
Tapping Sizes	1" for 3 9/16" Radiator Depth. 1 1/4" for 5 9/16", 1 1/2" for 7 9/16", 2" for 9 1/8" and 11 1/8" Radiators.											



Face Open Type

Table shows minimum inlet and outlet dimensions, with not less than 65% free area. All outlets to be at least equal to radiator length.

W.	I.	F.	T.
3 9/16"	3"	3 1/2"	3"
5 9/16"	3 1/4"	4"	4 1/2"
7 9/16"	4 1/2"	5"	6 1/2"
9 1/8"	6"	6"	8"
11 1/8"	6"	6"	10"



Top Open Type

Ratings given in this catalogue assume that installation is in accordance with roughing dimensions as shown and minimum grille outlets and inlets as indicated in table at the left.

Loss in height of stack or restriction of grille openings results in loss of heating capacity.

Erskine radiators are guaranteed against mechanical defects to extent that for any found defective in manufacture, new radiators will be furnished F. O. B. Waterbury.

All radiators are tested to 100 pounds cold water pressure before shipment is made, and are for operating purposes to that extent. Should higher pressures be necessary, units made of heavier material than regular can be supplied at a slight additional cost.

In ordering, connections should be specified, i. e., top supply and bottom return—bottom supply and bottom return, etc.

All radiators are supplied with legs, threaded at the top to provide grade adjustment. Lock nuts make the adjustment secure and permanent. When top supply is specified additional brackets are furnished to permit use of the standard leg.

Radiator numbers for ordering or for reference are made up by combining the number of tubes with the length in inches. For example—a 2 tube radiator 24 inches long is designated No. 224.

Lbs. Shipping Weight Radiators Only

Length....Inches	12	14	19	24	29	34	39	44	49	54	59	64
2 Tube.....	6	6	7	8	9	10	12	13	14	16	17	19
3 Tube.....	7	9	11	12	14	16	17	19	21	23	25	27
4 Tube.....	10	12	14	17	19	21	24	26	28	31	33	35
5 Tube.....	13	15	18	20	23	26	29	32	35	39	42	46
6 Tube.....	14	18	22	24	28	32	34	38	42	46	50	58

Whether for 2 pipe steam, vapor, or one pipe steam should be specified.

The listed enclosure dimensions determine the size of recess that is necessary, bearing in mind that same are inside dimensions.

In ordering enclosures all dimensions, type and accessories desired should be specified.

List prices of enclosures are for the exact sizes and types as shown. Special sizes and designs can be furnished at special prices. Both square lattice and bar type grilles are standard.

Many installations are being made with the fronts only of metal. Back and sides of enclosures are formed of any good insulating board.

Shipping weights of complete enclosure—7 lbs. per sq. ft. of frontal area—approx.

Terms are Net 30 Days or 5% for Cash in 15 Days

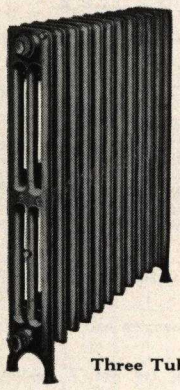
For Erskine Copper Water Heaters See Page 681

FEDERAL RADIATOR COMPANY ZANESVILLE, OHIO

Branch Offices

New York, N. Y., 2276 Woolworth Bldg.
Pittsburgh, Pa., 301 Brushton, Ave.
Cincinnati, Ohio, Building Industries Bldg.
Dayton, Ohio, 2114 Elsmere Ave.

Fero Radiators



Three Tube

Fero Three-Tube Pattern

Sizes and Ratings

Number of Sections	* Length 2½ In. per Section	38-In. Height 3½ Sq. Ft. per Section	31-In. Height 3 Sq. Ft. per Section	27-In. Height 2⅓ Sq. Ft. per Section	23-In. Height 2 Sq. Ft. per Section	20-In. Height 1¾ Sq. Ft. per Section
2	5	7	6	4⅔	4	3½
3	7½	10½	9	7	6	5¼
4	10	14	12	9⅓	8	7
5	12½	17½	15	11⅔	10	8¾
6	15	21	18	14	12	10½
7	17½	24½	21	16⅓	14	12¼
8	20	28	24	18⅔	16	14
9	22½	31½	27	21	18	15¾
10	25	35	30	23⅓	20	17½
11	27½	38½	33	25⅔	22	19¼

Fero Four-Tube Pattern

Sizes and Ratings

Number of Sections	* Length 2½ In. per Section	38-In. Height 4¼ Sq. Ft. per Section	32-In. Height 3½ Sq. Ft. per Section	26-In. Height 2¾ Sq. Ft. per Section	23-In. Height 2½ Sq. Ft. per Section	20-In. Height 2¼ Sq. Ft. per Section
2	5	8½	7	5½	5	4½
3	7½	12¾	10½	8¼	7½	6¾
4	10	17	14	11	10	9
5	12½	21¼	17½	13¾	12½	11¼
6	15	25½	21	16½	15	13½
7	17½	29¾	24½	19¼	17½	15¾
8	20	34	28	22	20	18
9	22½	38¼	31½	24¾	22½	20¼
10	25	42½	35	27½	25	22½
11	27½	46¾	38½	30¼	27½	24¾

Fero Five-Tube Pattern

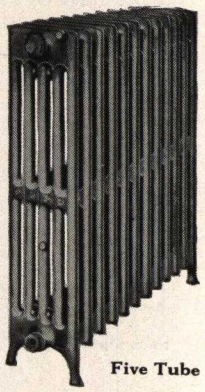
Sizes and Ratings

Number of Sections	* Length 2½ In. per Section	38-In. Height 5 Sq. Ft. per Section	32-In. Height 4⅓ Sq. Ft. per Section	26-In. Height 3½ Sq. Ft. per Section	23-In. Height 3 Sq. Ft. per Section	20-In. Height 2⅔ Sq. Ft. per Section
2	5	10	8⅔	7	6	5⅓
3	7½	15	13	10½	9	8
4	10	20	17⅓	14	12	10⅔
5	12½	25	21⅔	17½	15	13⅓
6	15	30	26	21	18	16
7	17½	35	30⅓	24½	21	18⅔
8	20	40	34⅔	28	24	21⅓
9	22½	45	39	31½	27	24
10	25	50	43⅓	35	30	26⅔
11	27½	55	47⅔	38½	33	29⅓

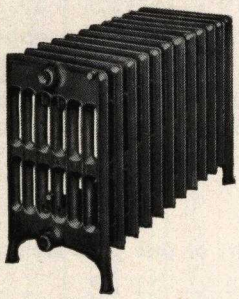
Fero Six-Tube Pattern

Sizes and Ratings

Number of Sections	* Length 2½ In. per Section	38-In. Height 6 Sq. Ft. per Section	32-In. Height 5 Sq. Ft. per Section	26-In. Height 4 Sq. Ft. per Section	23-In. Height 3½ Sq. Ft. per Section	20-In. Height 3 Sq. Ft. per Section
2	5	12	10	8	7	6
3	7½	18	15	12	10½	9
4	10	24	20	16	14	12
5	12½	30	25	20	17½	15
6	15	36	30	24	21	18
7	17½	42	35	28	24½	21
8	20	48	40	32	28	24
9	22½	54	45	36	31½	27
10	25	60	50	40	35	30
11	27½	66	55	44	38½	33



Five Tube



Seven Tube Window

Fero Seven-Tube Window Pattern

Sizes and Ratings

Number of Sections	*Length 2½ Inches per Section	20 Inches Height 3⅔ Sq. Ft. per Section	17 Inches Height 3¼ Sq. Ft. per Section	14 Inches Height 2⅔ Sq. Ft. per Section
2	5	7⅓	6½	5⅓
3	7½	11	9¾	8
4	10	14⅔	13	10⅔
5	12½	13⅓	16¼	13⅓
6	15	22	19½	16
7	17½	25⅔	22¾	18⅔
8	20	29⅓	26	21⅓
9	22½	33	29¼	24
10	25	36⅔	32½	26⅔
11	27½	40⅓	35¾	29⅓

Radiator	3 Tube	4 Tube	5 Tube	6 Tube	7 Tube
Width of Section, Inches	5¼	6⅝	8½	10⅜16	12⅛
Height of Legs, Inches	4½	4½	4½	4½	3

*Add ½-inch to length for each bushing.
Fero Radiators are tapped 1½-inch top and bottom.

Measurements from Floor to Center of Top Tappings—3, 4, 5, 6, 7 Tube Radiators

Radiator Size	Measurements	Radiator Size	Measurements
38	36⅜16	26	24⅜16
36	34⅜16	23	21⅜16
32	30⅜16	20	18⅜16
31	29⅜16	17	15⅜16
27	25⅜16	14	12⅜16

Burnham Radiators

Three Tube Pattern

Sizes and Ratings—3¼ Inches Wide

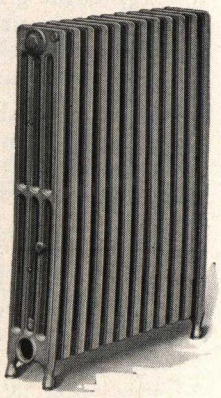
Number of Sections	*Length 1½ Inches Per Section	19-Inch Height 1.1 Sq. Ft. Per Section	22-Inch Height 1.3 Sq. Ft. Per Section	25-Inch Height 1.5 Sq. Ft. Per Section
2	3	2.2	2.6	3
3	4½	3.3	3.9	4.5
4	6	4.4	5.2	6
5	7½	5.5	6.5	7.5
6	9	6.6	7.8	9
7	10½	7.7	9.1	10.5
8	12	8.8	10.4	12
9	13½	9.9	11.7	13.5
10	15	11.0	13.0	15
11	16½	12.1	14.3	16.5

Four Tube Pattern

Sizes and Ratings—4⅞16 Inches Wide

Number of Sections	*Length 1½ Inches Per Section	19-Inch Height 1.4 Sq. Ft. Per Section	22-Inch Height 1.6 Sq. Ft. Per Section	25-Inch Height 1.8 Sq. Ft. Per Section
2	3	2.8	3.2	3.6
3	4½	4.2	4.8	5.4
4	6	5.6	6.4	7.2
5	7½	7.0	8.0	9.0
6	9	8.4	9.6	10.8
7	10½	9.8	11.2	12.6
8	12	11.2	12.8	14.4
9	13½	12.6	14.4	16.2
10	15	14.0	16.0	18.0
11	16½	15.4	17.6	19.8

*Add ½-inch to length for each bushing. Height of legs 3 and 4 tube, 2½ inches.
Burnham Radiators are tapped 1-inch at top; 1¼-inch at bottom.



Four Tube

AUTOMATIC GAS-STEAM RADIATOR CO. PITTSBURGH, PA.

Main Office and Factory—301 Brushton Avenue

American Gas Association Laboratory Tested

Manufacturers of

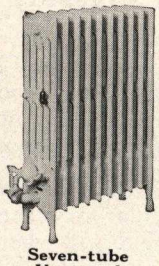
Representatives in Principal Cities

"Pittsburgh Automatic" Gas-Steam Radiators and Industrial Gas Unit Heaters

"Pittsburgh Automatic" Gas-Steam Radiators

Steam heat—no boiler, no waste, no labor.

Our patented automatic steam pressure regulator insures a steam pressure between 2 and 6 lb. at all times. This regulator has proved itself over a period of years to function properly at all times. The service calls on "Automatics" are negligible.



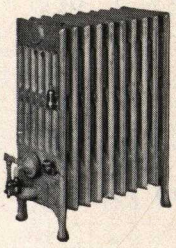
Seven-tube Unvented 32 inches high

Our New Vented Filling Cup is another patented feature found only on "Automatics." It enables the radiator to be filled quicker and does not require a funnel or other apparatus for this operation.

"Automatics" are approved by the American Gas Association and listed as standard by the National Board of Fire Underwriters.

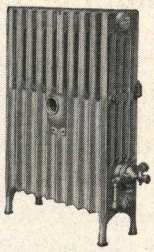
The "Pittsburgh Automatic" consists of a cast iron radiator of standard appearance. Steam is generated separately in each radiator by gas (automatically controlled) making each radiator a complete low-cost steam heating plant.

It allows as much heat as wanted, whenever wanted. Houses and apartments, offices or stores, churches or schools may have a radiator for each room in the usual way, but the "Pittsburgh Automatic" can be operated separately. Individual requirements, to the maximum or minimum of heat may be supplied day and night.



Vented Type

Absolute Safety—"Automatic" radiators are tested to a cold water pressure of 100 lb. to the square inch before leaving the factory. As an additional factor of safety, each steam radiator is equipped with a safety valve to automatically release any pressure higher than 20 lb. No part of the system can become overheated either through accident or carelessness.



Unvented Type

Used in Combination with Boiler Plant—"Automatic" radiators can be connected with central plant or boiler supplying regular steam radiators and operated in the usual way. When boiler is not fired the "Automatic" can be used separately under its own steam generated within the radiator. This combination makes a very flexible system and can be used in mild weather before boiler is started.

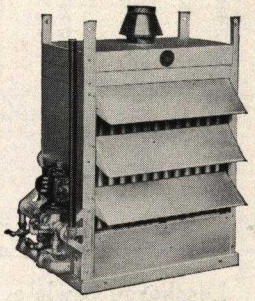
Pittsburgh Industrial Gas Unit Heater

Designed for ceiling suspension for use in buildings of large cubical content and high ceilings—especially recommended for factories, garages, stores, etc.

Capacity 100,000 B. t. u. per hour or equivalent to about 400 ft. direct cast iron radiation.

An automatic electric gas valve shuts off the gas when the fan is not running, thus the unit cannot become overheated. Thermostatic control can be attached.

Important—When ordering be sure to specify voltage and current desired. Standard equipment is 110 volts, alternating current, 60 cycles.



Gas Unit Heater

Five Tube—22 Inches High—Unvented

No. Sections	Cap. Feet	Length Inches	Weight Pounds	Code Word	List Price
4 ELL	21	15	80	Earl	$34.00
6 ELL	31	20	120	Ebony	41.00
8 ELL	40	25	160	Echo	50.00
10 ELL	50	30	200	Eden	58.00
12 ELL	60	35	240	Elder	66.00
15 ELL	75	42½	300	Elate	79.00

Five Tube—26 Inches High—Unvented

No. Sections	Cap. Feet	Length Inches	Weight Pounds	Code Word	List Price
4 EL	24	15	100	Fain	$40.50
5 EL	29	17½	120	Ferro	44.00
6 EL	34	20	138	Flax	46.50
8 EL	44	25	184	Folio	53.00
10 EL	54	30	230	Foray	63.00
12 EL	64	35	276	Franc	69.50
15 EL	79	42½	345	Furl	81.00

Five Tube—38 Inches High—Unvented

No. Sections	Cap. Feet	Length Inches	Weight Pounds	Code Word	List Price
4 EH	37	15	130	Hale	$46.00
5 EH	45	17½	155	Hemp	52.00
6 EH	52	20	180	Herb	57.00
8 EH	66	25	240	Hipp	65.00
10 EH	79	30	300	Holm	71.00

Five Tube—26 Inches High—Vented Radiators

Number Sections	Capacity Feet	Length Inches	Weight Pounds	Code Word	List Price
4 ELV	12	15	120	Able	$ 38.00
5 ELV	15	17½	140	Acme	43.00
6 ELV	18	20	162	Adorn	49.00
8 ELV	24	25	216	Aero	56.00
10 ELV	30	30	270	Agate	65.00
12 ELV	36	35	324	Alum	75.00
15 ELV	45	42½	410	Arena	85.00

Five Tube—38 Inches High—Vented Radiators

Number Sections	Capacity Feet	Length Inches	Weight Pounds	Code Word	List Price
4 EV	22	15	146	Babe	$40.00
5 EV	27½	17½	175	Beam	49.00
6 EV	33	20	205	Bice	56.00
8 EV	44	25	272	Blade	66.00
10 EV	55	30	340	Boer	77.00
12 EV	66	35	396	Bran	89.00
15 EV	82½	42½	495	Buck	105.00

Seven Tube—27 Inches High—Unvented

Number Sections	Capacity Feet	Length Inches	Weight Pounds	Code Word	List Price
5 LW	43	17½	120	Cape	$50.50
6 LW	51	20	144	Celt	56.50
7 LW	58	22½	168	Chap	62.00
8 LW	66	25	192	Cord	67.00
9 LW	74	27½	216	Crow	73.00
10 LW	82	30	240	Cult	79.00

5 Tube—8¾ inch wide.

Seven Tube—32 Inches High—Unvented

Number Sections	Capacity Feet	Length Inches	Weight Pounds	Code Word	List Price
5 HW	55	17½	190	Dale	$54.00
6 HW	64	20	220	Dean	59.00
7 HW	74	22½	260	Dial	65.50
8 HW	83	25	290	Doric	71.50
9 HW	93	27½	330	Dray	77.00
10 HW	102	30	370	Ducat	82.50

7 Tube—12 inch wide.

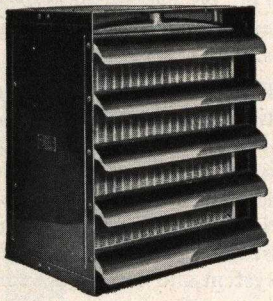
Prices on Larger or Special Radiators on Application

AMERICAN BLOWER CORPORATION — DETROIT, MICH.

6000 Russell Street

Branches in Principal Cities of U. S. A. and Canada

VENTURAFIN Method of Heating for Floor, Wall or Ceiling Mounting High, Medium or Low Pressure Steam Applications



Units Nos. 16, 22, 26 and 30, because they are relatively quiet in operation, are suitable for installation in stores, offices, showrooms and similar places where forced heat evenly distributed and easily controlled is not only desirable from the standpoint of comfort and health, but is necessary to economical and efficient heating.

Units Nos. 18, 24, 28, 35, 40 and 50 are recommended for installation in factories, garages, industrial plants and similar structures where units of greater thermal and air capacity than the above are needed and where some noise is not objectionable. Both series are compact and sturdy units consisting of efficient motor, fan and heating element, enclosed in strong casing. Easily assembled and installed.

Size Unit	R. P. M.	B. H. P.	Air Ent. 60°—2 Pounds Steam					Air Ent. 60°—5 Pounds Steam			Air Ent. 60°—10 Pounds Steam		
			C. F. M.	B. T. U.	Final Temp.	Cond.	E. D. R.	B. T. U.	Final Temp.	Cond.	B. T. U.	Temp.	Cond.
16	1080	0.05	760	31400	98.3	32.6	130	33200	100.5	34.6	35600	103.5	37.3
18	1450	0.11	1130	41600	94.2	43.1	173	44000	96.1	45.8	47200	98.7	49.3
22	1080	0.05	700	48000	123.6	49.7	200	50700	127.1	52.9	54000	131.5	56.5
24	1450	0.11	1017	60000	114.6	62.3	250	63500	117.9	66.0	67600	121.7	70.8
26	1080	0.05	855	72000	138.3	74.6	300	76100	142.0	79.3	81150	148.2	85.0
28	1450	0.11	1300	96000	128.5	99.5	400	101300	132.2	105.4	108000	136.7	113.5
30	1140	0.125	1510	109500	125.5	113.3	455	115800	129.3	120.6	123600	134.0	129.9
35	1140	0.25	2500	162000	120.4	167.7	675	171200	123.8	178.3	182900	128.2	192.1
40	1000	0.3	3200	204000	119.0	211.0	850	215000	122.0	224.0	230000	127.0	242.0
50	850	0.5	4650	288000	127.0	298.0	1200	304000	120.7	317.0	326000	125.0	342.0

C. F. M.—Cubic feet of air delivered, based on 60° F. entering temperature, corrected to standard air at 70° F.
E. D. R.—Equivalent square feet direct radiation.

Sirocco Unit Heaters

For Floor and Ceiling Applications—High and Low Pressure Types
For Heating Factories, Warehouses, Shops, Garages and Industrial Institutions of all Types

Discharge cowls scientifically designed to direct the flow of heated air into working areas with high discharge velocity and minimum resistance.

The fan assembly is removable as a complete unit (with shaft and bearings intact).

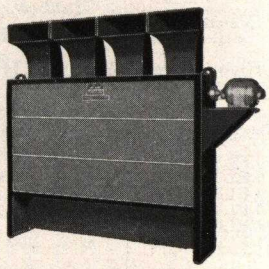
The Sirocco Fan, a most efficient air moving machine, is furnished in a series of one, two, three or four, depending on size and heating capacity of unit.

Motor is supported by heavy structural steel saddle.

The Casing occupies minimum space and provides ample area for equal distribution of air.

The heating element is made up of copper tubes (non-corrosive) is suitable for operation with steam systems and is tested to 500 pounds hydraulic pressure.

Sirocco Unit Heaters can be used for ventilation as well as heat.



Unit No.	C.F.M.	R.P.M.	Motor H.P.	2 Pounds Steam			5 Pounds Steam			10 Pounds Steam			50 Pounds Steam		
				B.T.U.	Final Temp.	Cond. Lbs.	B.T.U.	Final Temp.	Cond. Lbs.	B.T.U.	Final Temp.	Cond. Lbs.	B.T.U.	Final Temp.	Cond. Lbs.
Floor and Ceiling Types Sirocco Unit Heaters—Four Rows of Tubes Deep															
1-18	2025	1160	½	119900	119.6	124	126000	123.0	132	134000	127.6	141	173100	150.8	190
2-18	4050	1160	1	239500	119.6	248	252000	123.0	263	268000	127.6	281	346500	150.8	380
3-18	6075	1160	1½	359000	119.6	372	378000	123.0	394	402000	127.6	422	520000	150.8	570
4-18	8100	1160	2	479000	119.6	496	504000	123.0	525	536000	127.6	562	693000	150.8	760
1-30	4000	870	1	255500	125.0	264	268500	128.5	279	287400	134.0	302	370600	159.8	407
2-30	8000	870	2	511500	125.0	528	536000	128.5	559	574500	134.0	604	741000	159.8	815
3-30	12000	870	3	767000	125.0	793	805000	128.5	839	863000	134.0	906	1112000	159.8	1222
Floor and Ceiling Types Sirocco Unit Heaters—Three Rows of Tubes Deep															
1-18	2035	1160	½	95000	105.9	98	99850	108.4	104	106850	112.2	112	139000	129.8	153
2-18	4070	1160	1	190000	105.9	197	199750	108.4	208	213750	112.2	224	278000	129.8	305
3-18	6105	1160	1½	285000	105.9	295	299700	108.4	312	320800	112.2	336	417000	129.8	457
4-18	8140	1160	2	380000	105.9	393	399500	108.4	416	427500	112.2	448	556000	129.8	610
1-30	4015	870	1	206700	111.1	213	216700	113.8	226	230670	117.7	242	303300	137.9	331
2-30	8030	870	2	413000	111.1	428	433300	113.8	451	426200	117.7	483	603000	137.9	662
3-30	12045	870	3	620000	111.1	642	650000	113.8	677	692000	117.7	725	905000	137.9	993

Complete information regarding above furnished on request.

AUTOVENT FAN & BLOWER COMPANY — CHICAGO, ILL.

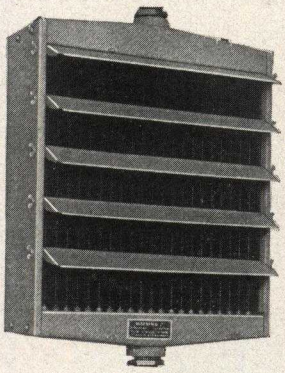
Main Office and Factory—1805-27 N. Kostner Avenue

BRANCHES IN ALL PRINCIPAL CITIES

The Autovent Super Type Unit Heater

Autovent Super Type Unit Heaters are adaptable to industrial, garage and warehouse heating, and some types of commercial construction, where unusually large areas must be rapidly and thoroughly heated economically. A wide range of sizes in both suspended and floor types available.

Construction Features—Copper tubes secured to header by special screw sleeve and ferrule which compresses tube into ground seat in header, making a tight and permanently leak proof joint. Super type heating element consisting of two rows of vertical copper tubes to which are firmly attached large smooth copper fins, placed parallel to direction of air flow. The air is split up into a series of fine streams by action of the fins, effectively transferring the heat to the air. Adjustable deflectors to insure proper distribution of heated air. Each blade can be adjusted separately. Semi-steel return header forming entire bottom of heater. Rugged and substantial. Heavy sheet steel cabinet finished in gray enamel. Disc type fan especially designed for unit heater work. Powerful and efficient. Semi-enclosed motor especially designed for unit heater operation. Pressure chamber between front of fan and rear of heating element to insure proper distribution of air and to eliminate dead air pockets. Semi-steel supply header forming entire top of heater with baffle to insure equal steam distribution. Lugs provided on header to support heater.

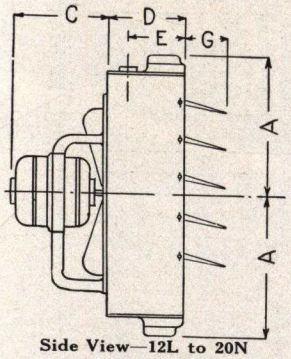


Easily Installed—Unit sizes 12L to 20N inclusive, are provided with two ½-inch drillings through which round bars may be inserted and bolted directly to the header for suspension from ceiling beams or roof trusses, exactly where they are needed. Sizes 24L to 30N inclusive, are equipped with angles located on both sides of the top header so that the units can be suspended by means of strap hangers, angle irons or other methods.

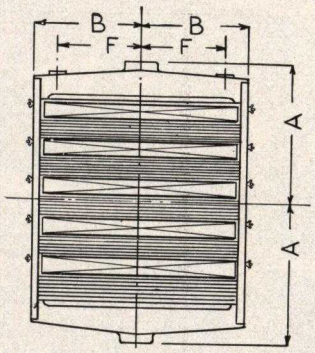
Capacities—The table below shows capacities with steam at 2, 5, 50 and 100 pounds and entering air temperature of 60 degrees F. Complete range of capacities and any other desired information gladly furnished on request.

Size of Heater	R.P.M. of Motor	Fan Capacity C.F.M.	Ratings with Air Entering Heater at 60 Degrees F.											
			2 Pound Steam Pressure			5 Pound Steam Pressure			50 Pound Steam Pressure			100 Pound Steam Pressure		
			B.T.U. per Hour	Equiv. Sq. Ft. Direct Radiation	Cond. per Hour	B.T.U. per Hour	Equiv. Sq. Ft. Direct Radiation	Cond. per Hour	B.T.U. per Hour	Equiv. Sq. Ft. Direct Radiation	Cond. per Hour	B.T.U. per Hour	Equiv. Sq. Ft. Direct Radiation	Cond. per Hour
12L	820	400	35,910	149	37.4	37,800	158	39.4	53,350	222	55.5	62,580	261	65.2
12N	1100	600	47,180	196	49.1	49,200	205	51.2	70,090	292	73.0	82,220	342	85.5
12R	1700	1000	59,220	246	61.7	62,400	260	65.1	87,980	366	91.6	103,210	430	107.5
16L	850	1000	87,080	362	90.7	91,400	380	95.2	129,370	539	135.0	151,760	632	158.0
16N	1150	1400	108,080	450	112.6	112,900	470	117.6	160,570	669	167.2	188,360	785	196.2
16R	1750	2000	131,390	547	136.8	138,000	575	143.7	195,200	813	203.3	228,990	954	238.5
18L	850	1600	130,200	542	135.5	139,000	580	145.0	194,000	819	213.0	227,000	945	258.0
18N	1150	2200	164,500	685	171.0	172,000	716	179.0	244,000	1015	268.0	287,000	1195	326.0
18R	1750	3000	194,040	808	202.1	204,600	853	213.2	288,280	1201	300.2	338,180	1409	352.2
20L	850	2100	166,600	694	173.5	175,000	728	182.0	248,000	1032	272.0	290,000	1210	329.0
20N	1150	2800	209,300	872	218.0	213,000	888	222.0	311,000	1295	415.0	365,000	1520	415.0
24L	850	3800	294,000	1225	306.0	306,000	1276	319.0	437,000	1820	480.0	513,000	2140	583.0
24N	1150	4700	326,200	1359	339.7	342,000	1424	356.0	485,000	2020	533.0	568,000	2365	645.0
30L	690	5400	424,200	1767	442.0	442,000	1840	460.0	630,000	2620	692.0	740,000	3080	840.0
30N	850	6500	458,500	1910	477.5	485,000	2020	505.0	682,000	2840	749.0	799,000	3330	907.0

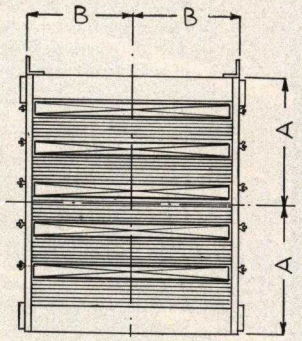
All sizes of Autovent Super Type Unit Heaters can be furnished with Constant or Variable Speed Motors.



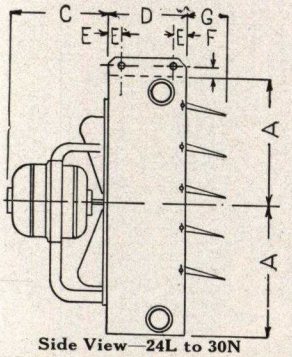
Side View—12L to 20N



Front View—12L to 20N



Front View—24L to 30N

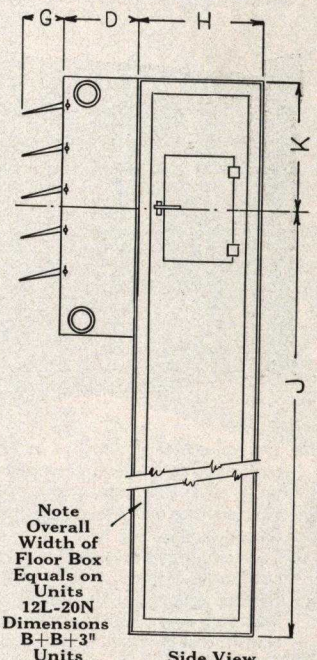


Side View—24L to 30N

Dimensions—Weights—Size Piping Connections

Unit Size	A	B	C	D	E	F	G	H	J	K	Wheel Diam.	Steam Tapping		Net Weight	
												Sup.	Ret.	Unit	Floor Box
12	9¾	7⅛	9	6	5	5⅛	4	10	87½	8½	12	1½	1½	75	150
16	13⅛	9¾	10½	7	5	7⅛	4	15	91	11¾	16	2	2	138	225
18	15⅝	12	11½	8	6	9¾	5	18	93	13¾	18	2	2	182	250
20	16¾	13	12¾	8	6	10¾	5	20	95	14¾	20	2½	2½	218	285
24	18½	15½	14	11	1½	1	6	22	97	18½	24	2–2	1–2	343	360
30	21½	19½	15	12	1½	1	6	28	100	21½	30	2–2	1–2	475	450

Note.—All dimensions in inches.



Side View of Unit with Floor Box

Note Overall Width of Floor Box Equals on Units 12L-20N Dimensions B+B+3" Units 24L-30N Dimensions B+B+4"

BUFFALO FORGE COMPANY BUFFALO, N. Y.

General Office and Factory—475 Broadway

"Air Engineers for Over Fifty Years"

Branch Offices

ALBANY, N. Y., 414 Standard Building, H. S. Johnson
ATLANTA, GA., Candler Building, E. T. Gorbandt
BALTIMORE, MD., 1302 Munsey Building, R. T. Harmon
BOSTON, MASS., 150 Causeway Street, E. D. Johnson
CHICAGO, ILL., 15 No. Jefferson Street, L. D. Emmert
CINCINNATI, OHIO, 605 Mercantile Library Building, F. W. Twombly
CLEVELAND, OHIO, 368 Rockefeller Building, T. A. Weager
DALLAS, TEXAS, 2710 Live Oak Street, W. J. Allan
DENVER, COL., Hendrie and Bolthoff, 1635 Seventeenth Street, H. V. Waterman
DETROIT, MICH., Coon de Visser, 2051 West Lafayette Boulevard
GREENVILLE, S. C., P. O. Box 563, G. R. Morgan
HOLYOKE, MASS., 159 Beech Street, S. R. Osborne
INDIANAPOLIS, IND., 725-727 Circle Tower, I. D. DeHaven
KANSAS CITY, MO., 1028 New York Life Building, L. R. Chase
KITCHENER, ONT., CANADA, Canadian Blower & Forge Co., Ltd. A. S. Capwell
KNOXVILLE, TENN., P. O. Box 1035, 315 Empire Building. Chas. F. Sexton
LOS ANGELES, CAL., 610 Pershing Square Building, P. R. Adrianse
MINNEAPOLIS, MINN., 459 North Western National Life Building, E. F. Bell
NEW ORLEANS, LA., 627 Toulouse Street, A. T. Hayes
NEW YORK, N. Y., 39 Cortland Street, W. S. Koithan
OMAHA, NEB., 923 W. O. W. Building, D. H. Braymer
PHILADELPHIA, PA., 810 Land Title Building, L. C. Davidson
PITTSBURGH, PA., 927 Union Trust Building, H. L. Moore
SAN FRANCISCO, CAL., Herberts Moore Machinery Co., 140 First Street, J. G. Scott
ST. LOUIS, MO., 1596 Arcade Building, J. W. Cooper
SEATTLE, WASH., 303 Alaska Building, A. T. Forsyth
TOLEDO, OHIO, 1817 No. 13th Street, C. M. Eyster
WASHINGTON, D. C., 403 Commercial National Bank Building G. S. Frankel

Improved Buffalo Breezo-Fin Unit Heaters—Model "B"

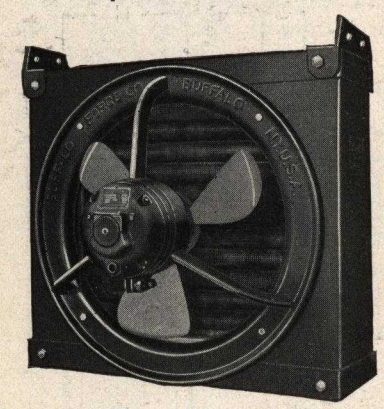


The new Model "B" Breezo-fin Unit Heaters shown here are the perfected product of many years practical experience in the manufacture of heating equipment. In these new models, efficient, light-in-weight and pleasing in appearance, we have incorporated many tested and approved improvements.

It is our conviction that the Model "B" Breezo-fin Heater will set a new standard for small, suspended type units—in quietness of operation, low B. T. U. cost, low maintenance cost and attractive appearance.

Here are some of the features of the new models:

1. The casing is good-looking and substantial. It is die-stamped and welded, with reinforced corners. It will stand knocking about, and there are no breakable parts.
2. Simple clip hangers are furnished as standard equipment. They can be easily attached to any two of the four corners, providing inexpensive support for either platform, side bracket, or top suspension.
3. The fan is an efficient die-stamped design, improved in air delivery without increased power consumption. It is unusually quiet. The bracket is die-stamped and welded, unbreakable.



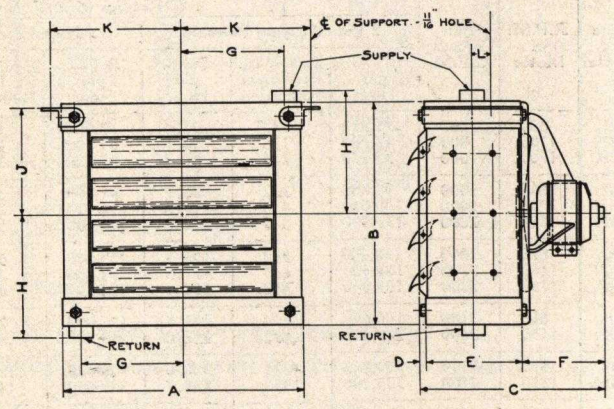
4. The discharge louvers are each separately adjustable to direct the air where desired. The air velocity is sufficient to provide positive distribution.
5. The heater element is Aerofin—the standard lightweight heater made of brass tube and copper fin, non-corrosive and highly efficient. Heaters are suitable for any steam pressure from 2 lbs. to 250 lbs. These heating coils have been designed especially for Model "B" Heaters with vertical supply on top and vertical drip at bottom, fool proof against expansion, condensate and water-hammer troubles.
6. The volume of air handled by each size has been increased and the final temperatures lowered, thus offering a more satisfactory distribution of warm air in the working zone. Also less steam is wasted, due to lower air temperatures under roofs with consequent less B. T. U. loss through roofs and skylights.
7. The complete die-stamped and welded casing and fan construction, without fragile castings, together with the lightweight copper Aerofin heater element makes this the lightest and at the same time most rugged unit heater of equivalent capacity, saving transportation charges, damage in transit, cost of handling and erection.

The Model "B" Breezo-fin is manufactured in eight sizes, permitting a selection not only for size, but air capacity and final temperature. Prompt delivery can be made on all sizes. See next column for dimensions.

Motors

Fully enclosed motors are standard equipment, and all sizes are carried in stock. Constant speed motors are available in single phase, three phase and direct current.

At a slight additional cost, variable speed "capacitor" type motors are available in 110 or 200 volt, single phase current affording 3 operating speeds. This combination of low, medium and high speed is recommended since it provides a means of adjusting the B. T. U. output of the heater to fit the heating load, and does not waste steam or electric current in mild weather.



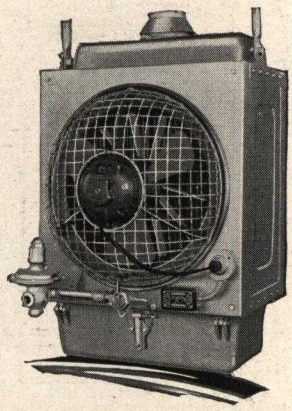
Dimensions

No.	112 | 212	116 | 216	118 | 218	124 | 224
Size	12	16	18	24
A	21	24	27	39
B	17 3/16	22 7/16	26 3/16	33 11/16
C	16 15/16	18 7/8	19 13/16	24 13/16
D	3/4	3/4	3/4	3/4
E	9 3/8	9 3/8	9 3/8	9 3/8
F	6 15/16	8 3/4	9 11/16	14 11/16
G	9 17/32 | 8 7/8	11 1/32 | 10 3/8	12 11/32 | 11 7/8	18 17/32 | 17 7/8
H	11 1/8 | 9 3/8	13 3/4 | 10 1/8	16 5/8 | 13 7/8	19 3/8 | 17 5/8
J	8 11/32	10 31/32	12 27/32	16 19/32
K	11 5/8	13 1/8	14 5/8	20 5/8
L	2	2	3 1/4 | 2	3 1/4
S. & R.*	1 | 2	1 | 2	1 | 2	1 | 2

*Supply and Return. All Dimensions in Inches.

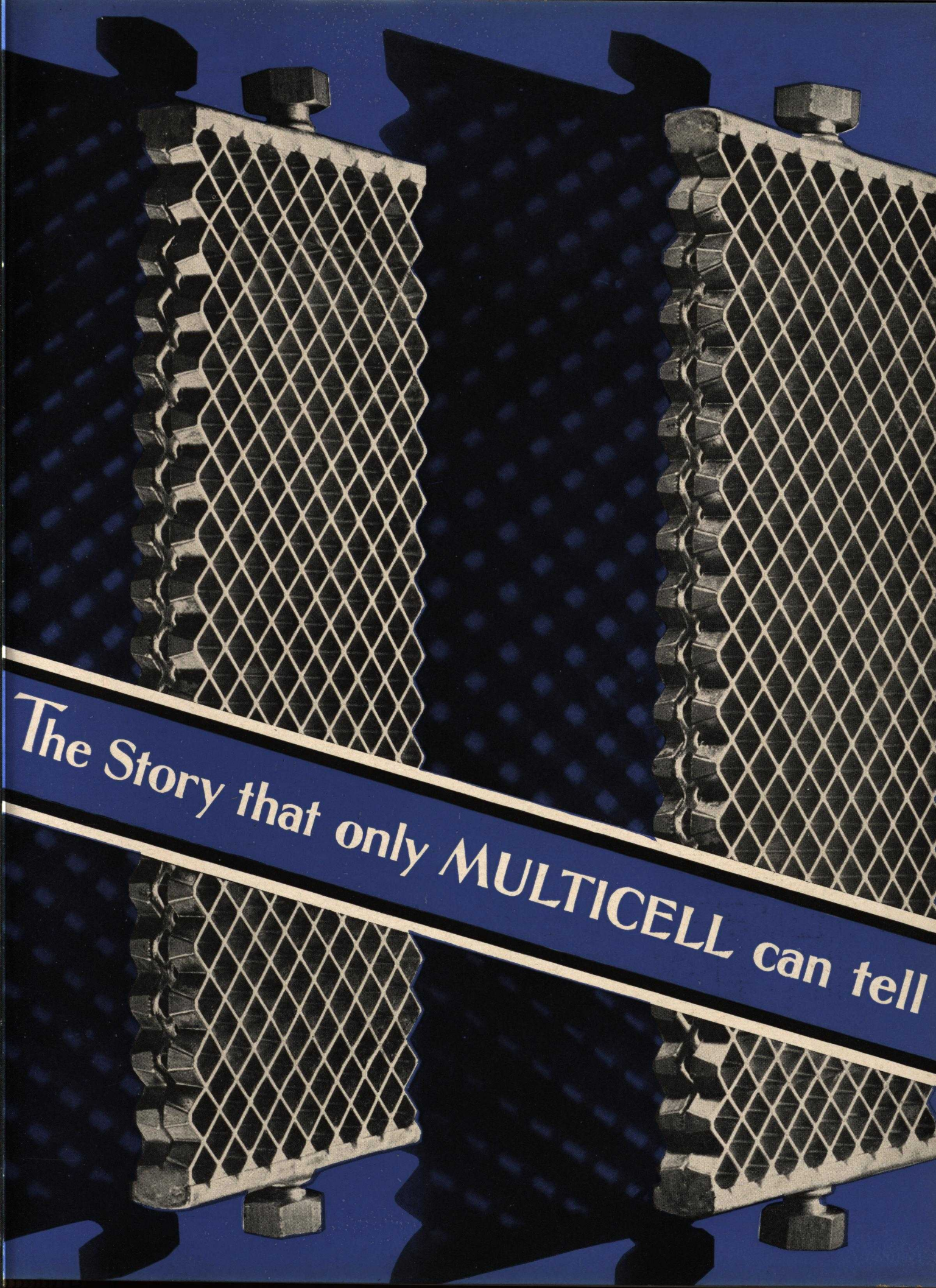
Buffalo Gas-Fired Units

Made in suspended and floor types, two sizes each. Total capacity, 75,000 to 450,000 B. T. U. input per hour. All models equipped with full automatic safety features. Advantages are: low first cost, by eliminating boiler room, fuel storage, auxiliary equipment and necessity for fireman or engineer; easy installation; cleanliness; automatic control; etc. Write for bulletin.



Other Buffalo Unit Heaters

In addition to Breezo-fin and Gas Fired Unit Heaters, we manufacture the Highboy and Lowboy Units, as well as Unit Washers. These are large capacity units, especially suited for heating large areas. Complete bulletins on request.


The Story that only MULTICELL can tell

MULTICELL RADIATOR CORPORATION — LOCKPORT, N. Y.

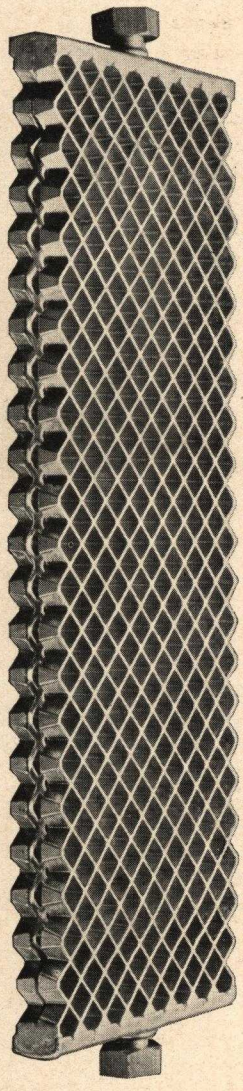
Representatives:

Brookline, Mass., Nordbeck-Hoyt & Jackson, Inc., 1352 Beacon St.
Chicago, Ill., E. N. Murphy, 168 N. Michigan Ave.
Cleveland, Ohio, The Kirby Co., 1958 W. 45th St.
Danbury, Conn., William H. Hoyt, Pershing Bldg.
Denver, Colo., Wesco Co., 642 Lawrence St.
Detroit, Mich., Stuart S. Wills Co., 5736 Twelfth St.
Milwaukee, Wis., Bernard J. Doyle, 3103 W. Wells St.
Muncie, Ind., Hutzel & Co., Hutzel Bldg.
New York, N. Y., H. N. Bennett, 320 W. 78th St.
Philadelphia, Pa., James Spear Stove & Htg. Co., 1823 Market St.
Rochester, N. Y., H. F. Old, 306 Laburnum Crescent.
Salt Lake City, Utah, Waterworks Equipment Co., 149 W. Second S. St.
San Francisco, Cal., United Blower Co., 1265 Folsom St.
St. Paul, Minn., J. W. Goar Co., 2490 Beverly Rd.
St. Louis, Mo., Syco Equipment Co., 1031 Big Bend Rd.
Syracuse, N. Y., James J. Lawson, Eckel Bldg.
Tonawanda, N. Y., J. J. Green, 39 Benton St.
Winston-Salem, N. Car., Kester Machinery Co.

Multicell Unit Heaters

For Steam, Vapor and Vacuum Heating

The radical improvements which Multicell Unit Heaters present to the heating industry has been made possible by Multicell Surface. The engineering merit of Multicell Surface contributes new standards of efficiency, dependability, ruggedness and economy to every phase of unit heater construction, installation, operation and maintenance.



Photograph showing accordion like pattern which absorbs expansion and contraction

Multicell Unit Heaters were designed with the cooperation of some of America's foremost heating engineers. The approval with which they have been received by the heating fraternity is a compliment to the engineers who designed them. They meet the fundamental and basic principles of unit heating under the most exacting conditions.

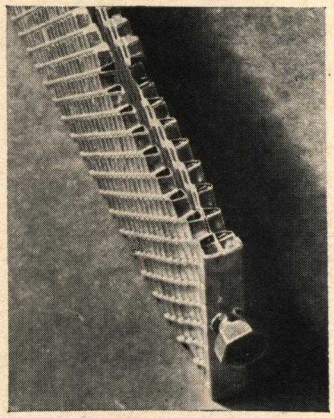
What Multicell Surface Is

Multicell Heating Surface is made of one piece seamless copper by an exclusive and patented process of electrical deposition. The surface is cellular in design and has an accordion-like pattern which allows it to absorb expansion and contraction within itself. This construction eliminates the possibility of leaks by ending the necessity for diaphragm headers and a multiplicity of soldered joints. Every Multicell section is tested with 100 pounds air pressure under water. Multicell Surface is heavily tinned inside and outside to make it proof against corrosion.

Multicell Surface is 100% prime heating surface. Its cellular surface design is theoretically correct in its contour and proportions. All the air is brought into intimate contact with all steam backed surface. This assures maximum heat transfer per unit of area and per unit of weight with minimum resistance to flow of air. Steam and waterways are of such ample proportions that pressures are practically the same at inlet and outlet.

No Fin Surface to Choke

Multicell Surface has no fin surface. It does not become choked or clogged when operating under difficult conditions of dust or lint laden air. Self cleaning, Multicell Surface maintains its original heating efficiency.



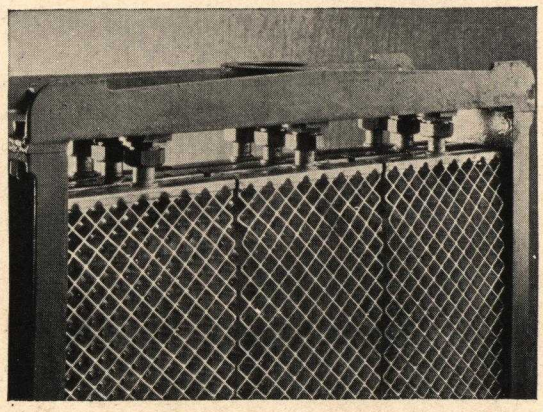
Close-up photo of a Multicell element cut away to show its large steam or waterways and its efficient surface design for maximum heat transfer

How Multicell Surface Makes a Radically Improved Heater Possible

Multicell Unit Heaters have features which have won the hearty approval of exacting engineers, contractors and plant maintenance men.

Multicell frames are of rigid all cast construction. The frame absorbs all piping strains and will not deteriorate from corrosion.

Flow and return headers are cast integral with the frame, thus presenting a more substantial, compact unit with fewer parts.



Showing how Multicell elements are assembled in the rigid cast iron frame which takes all piping strains. Individual sections are readily removable. They are mounted with a compression union at top and bottom

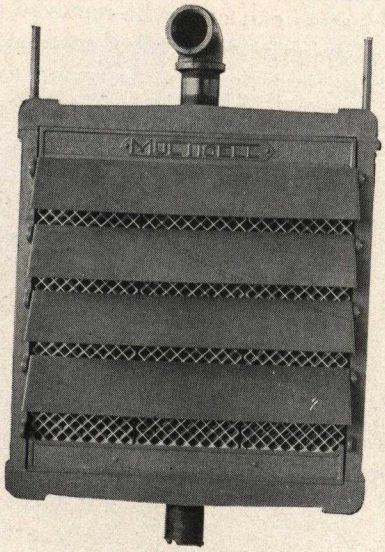
Multicell Unit Heaters

For Steam, Vapor and Vacuum Heating

How Multicell Sections are Mounted

Multicell sections are mounted in the frame (in the No. 18 size and larger) by means of compression unions at top and bottom. Any section which may become damaged through some external cause, can be quickly removed for repairs or replacement without necessitating the removal of heater. The damaged section can be removed and by plugging the flow and return header openings with standard pipe plugs, the unit can continue in service until replacement is made. Such a change requires only a momentary interruption of the heater's service for all parts are readily accessible. This is of vital importance during severe weather.

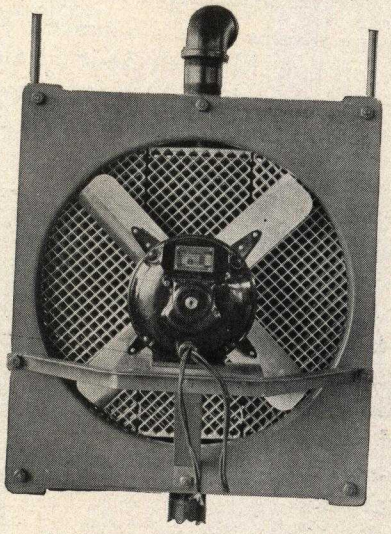
Once installed, Multicell Unit Heaters stay installed.



No. 18 Multicell Unit Heater
Front view

Backed By Our Guarantee of Performance

The features of Multicell Surface and Multicell heater construction have made possible the most sensational guarantee ever placed behind a unit heater. They are guaranteed against leakage and against failures due to piping strains. The experience of users over the years proves that the Multicell Guarantee of performance is fully justified. Multicell Unit Heaters have been proved and approved under the acid test of service.



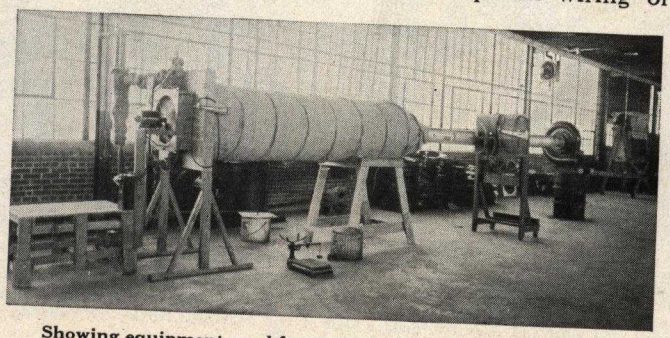
No. 18 Multicell Unit Heater
Rear view

Multicell Performance

There is a natural tendency for air to stratify according to temperature. Heated air rises and is displaced by cooler air below. The effective heating zone in any building is from the floor to about five-foot level. Therefore, a successful unit heater must be capable of forcing the heated air down into the comfort zone to partially displace and diffuse with the cooler air and thereby counteracting the natural tendency of stratification.

The higher the temperature of air leaving the unit heater, the more difficult it is to drive heated air downward. Accordingly, the higher the final temperature the higher should be the velocity of air leaving heater.

Multicell's successful performance is due to the definite relation between face velocity and final temperature. It assures proper diffusion in the comfort zone and in buildings with high ceilings, it effects low temperature differentials between floor and ceiling.



Showing equipment used for testing and rating Multicell Unit Heaters. DEMAND GUARANTEED CODE RATINGS

Demand Code Ratings

Multicell Unit Heaters are tested and rated in accordance with the standard code for testing and rating steam unit heaters, adopted January 1930 by the Industrial Unit Heater Association and the American Society of Heating and Ventilating Engineers.

Demand Code Ratings for accuracy.

Standard Motors

Totally enclosed motors of recognized and guaranteed makes are used. They are built to meet the special requirements of unit heater operations. Long life, dependability, current economy and minimum necessity for attention are a few of their features. They can be plugged in anywhere on the regular lighting circuit without special wiring or fuses. Re-filling their oil reservoirs once or twice during the heating season is all the attention they need.

Special Sections for Special Purposes

Multicell Surface is also available for special purposes and in other fields including refrigeration. It can be made in special sizes and shapes according to your specifications.

Multicell Unit Heaters

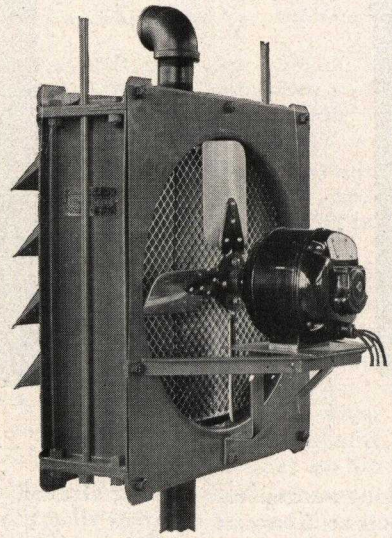
For Steam, Vapor and Vacuum Heating

Special Multicell Features

The following resume gives a summary of the outstanding features of Multicell Unit Heaters. You may get some of them in some heaters, but you can get ALL of them in the Multicell.

1. Multicell has 100% prime Heating Surface because of the exclusive process of electrical deposition. Multicell makes its heating elements from the inside out, with the result that a one-piece seamless unit is made with large waterways and a surface design which breaks up the air stream into hundreds of eddy currents, making all the air come into intimate contact with the surface.

2. The accordion-like action of the Multicell section is made possible by the diagonal pattern of its one-piece sections. This feature takes care of any expansion or contraction.



Side view of No. 18 Multicell Unit Heater showing depth

3. Multicell frames are of all cast iron construction with flow and return headers cast integral with upper and lower frame members respectively. This rigid all cast frame absorbs all piping strains and will not deteriorate from corrosion.

4. In case of accidental damage individual sections on Multicell Heaters can easily be removed simply by uncoupling one union at each end of section.

5. Multicell sections have ample waterways. They present so little resistance to steam that pressures are practically the same at inlet and outlet.

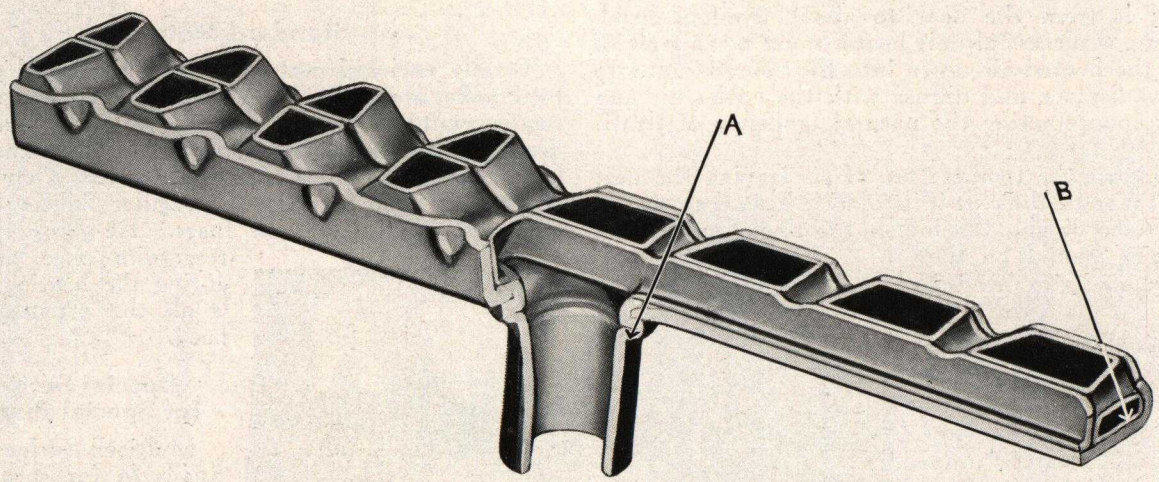
6. Multicell elements will not gather dust and lint. Their surfaces are smooth and self-cleaning, thus maintaining their original high efficiency without attention.

7. Multicell fans do not require special wiring. The motor draws but little current and can be connected in on the lighting line.

8. Multicell Unit Heaters are unusually light. They are easily installed and they give a large heat output per pound of weight.

9. In addition to heating factories, Multicell Unit Heaters have many other uses. When equipped with variable speed motors, they are especially adaptable to churches, auditoriums, etc. They respond quickly to heating demand and are very economical in cost.

10. Multicell sections are made of pure copper and covered with a protective coating of tin and lead both inside and out. There is no chance of corrosion.

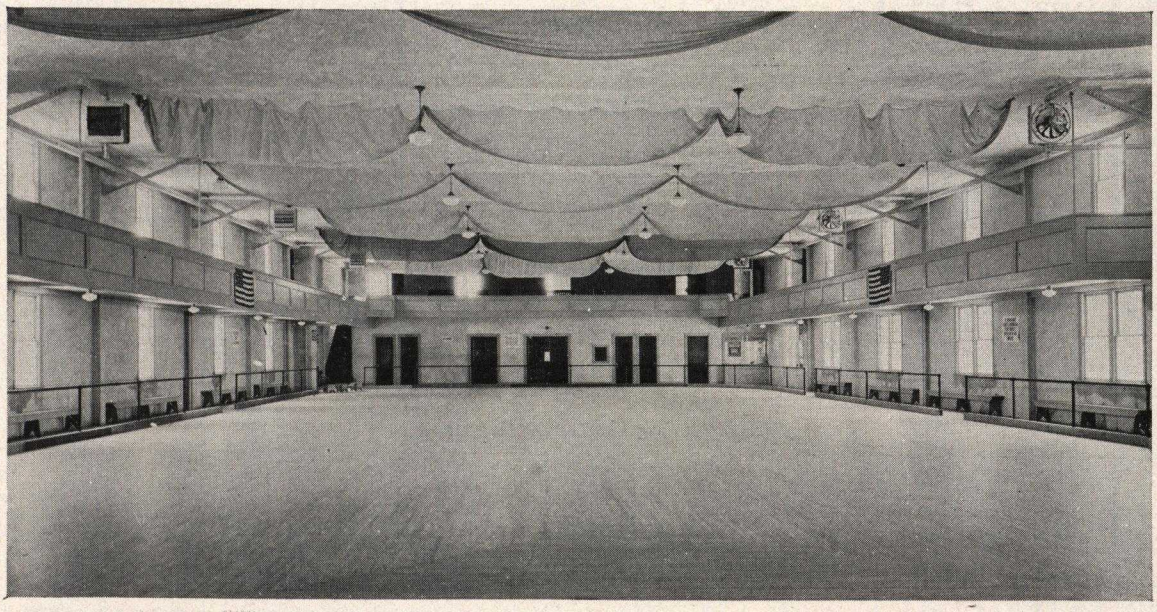


Cut-away section of the end of a Multicell section showing how its one-piece copper construction closes in the entire end of the section. The only opening in the copper element is at the center (A) where it opens into the nipple which is double rolled and soldered inside and outside to the heavy gauge brass reinforcement which is crimped and soldered over the entire end of the section. Note—no opening at end of section (B)

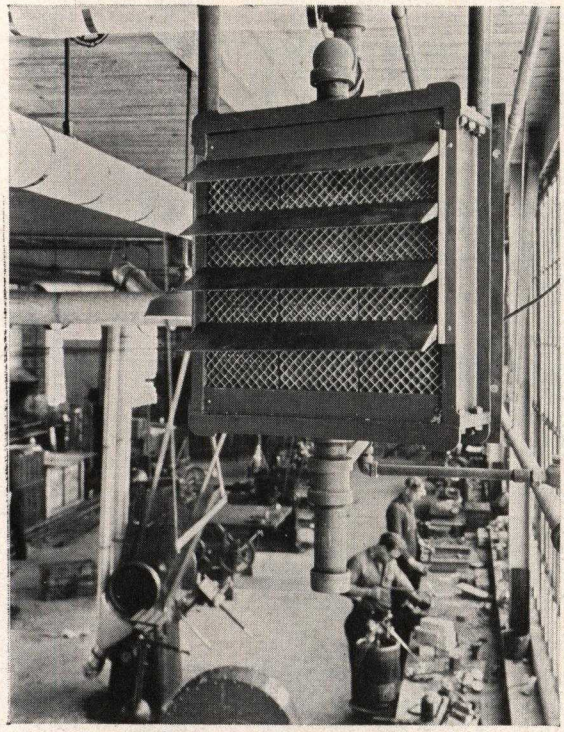
Multicell Unit Heater Installations

Illustrations on this page show some typical installations of Multicell Unit Heaters. These Heaters are particularly adapted to Industrial Plants, Factories, Garages, Auditoriums, Show Rooms, Churches, Gymnasiums, etc.

Multicell's engineering department will be glad to aid in the selection of the number and size of heaters necessary to properly take care of any installation.



Above illustration shows Multicell Unit Heaters installed in a large auditorium



A typical Multicell Installation. Adjustable Louvres direct the heat downward, where it is needed



Actual close-up photograph showing part of Multicell installation of Unit heaters in the Penn Yan Boat Co. plant at Penn Yan, New York

No. 13-B Multicell Unit Heater

Tested and rated in accordance with the standard code for testing and rating steam unit heaters, adopted January 1930 by the Industrial Unit Heater Association and the American Society of Heating and Ventilating Engineers.

R. P. M.	Motor H. P.	C. F. M. at Ent. Temp.	2 Pounds Steam				5 Pounds Steam			
			B. T. U. per Hr.	E. D. R.	Final Temp. Degrees F.	Cond. lb/Hr.	B. T. U. per Hr.	E. D. R.	Final Temp. Degrees F.	Cond. lb/Hr.
Air Entering Heater 70 Degrees F.										
860	1/30	445	29,000	120.0	130.3	30.0	30,600	127.5	133.4	31.9
1140	1/20	595	36,300	151.1	126.5	37.6	38,300	159.4	129.3	39.9
1440	1/20	755	43,400	181.0	122.9	44.9	45,700	190.5	125.7	47.6
1725	1/10	900	48,900	203.5	120.0	50.6	51,600	214.9	122.6	53.4
Air Entering Heater 65 Degrees F.										
860	1/30	445	30,300	126.1	127.3	31.4	31,900	133.0	130.5	33.2
1140	1/20	595	37,900	158.0	123.4	39.2	39,900	166.1	126.2	41.5
1440	1/20	755	45,300	188.5	119.7	46.9	47,700	198.5	122.5	49.7
1725	1/10	900	51,000	212.0	116.7	52.8	53,800	224.0	119.4	55.7
Air Entering Heater 60 Degrees F.										
860	1/30	445	31,600	131.5	124.2	32.7	33,200	138.2	127.4	34.6
1140	1/20	595	39,500	164.5	120.1	40.9	41,500	173.0	123.1	43.2
1440	1/20	755	47,200	196.8	116.4	48.9	49,600	206.2	119.2	51.6
1725	1/10	900	53,300	220.0	113.3	55.2	56,000	233.0	116.0	58.0
Air Entering Heater 55 Degrees F.										
860	1/30	445	32,900	137.0	121.3	34.1	34,500	143.8	124.4	35.9
1140	1/20	595	41,100	171.1	117.1	42.6	43,100	179.2	120.0	44.9
1440	1/20	755	49,100	204.2	113.2	50.8	51,500	214.2	116.0	53.6
1725	1/10	900	55,400	230.6	110.0	57.4	58,200	242.2	112.6	60.2
Air Entering Heater 50 Degrees F.										
860	1/30	445	34,300	143.0	118.3	35.5	35,900	149.5	121.3	37.4
1140	1/20	595	42,800	178.2	114.0	44.2	44,800	186.5	116.8	46.6
1440	1/20	755	51,200	213.5	110.0	53.1	53,600	223.5	112.6	55.8
1725	1/10	900	57,800	240.5	106.7	59.8	60,500	252.0	109.2	63.0
Air Entering Heater 45 Degrees F.										
860	1/30	445	35,600	148.3	115.3	36.9	37,200	155.0	118.4	38.7
1140	1/20	595	44,500	185.5	110.6	46.2	46,500	193.8	113.8	48.4
1440	1/20	755	53,200	220.9	106.8	55.2	55,600	231.7	109.6	57.8
1725	1/10	900	60,000	250.0	103.3	62.1	62,800	261.5	106.0	65.4
Air Entering Heater 40 Degrees F.										
860	1/30	445	36,900	153.8	112.2	38.2	38,700	161.2	115.5	40.3
1140	1/20	595	46,200	192.9	107.7	47.8	48,300	201.5	110.7	50.3
1440	1/20	755	55,700	232.0	103.4	58.4	57,800	240.5	106.2	60.1
1725	1/10	900	62,300	259.5	100.0	64.5	65,200	271.0	102.6	67.9
Air Entering Heater 32 Degrees F.										
860	1/30	445	39,300	163.8	107.6	40.7	41,000	170.8	110.7	42.7
1140	1/20	595	49,000	204.1	102.8	50.7	51,200	213.5	105.6	53.3
1440	1/20	755	58,600	244.1	98.3	60.7	61,300	255.0	101.1	63.8
1725	1/10	900	66,200	276.0	94.7	68.6	69,200	288.5	97.2	72.0
Air Entering Heater 0 Degrees F.										
860	1/30	445	49,200	205.0	88.4	51.0	51,100	213.0	91.8	53.2
1140	1/20	595	61,400	256.0	82.8	63.6	63,800	266.0	85.9	66.4
1440	1/20	755	73,400	306.0	77.6	76.0	76,300	317.5	80.6	79.3
1725	1/10	900	82,800	345.0	73.4	85.7	86,000	358.0	76.2	89.5

To determine capacity at other steam pressures and entering air temperatures, multiply capacity for 60 degrees entering air and 2 pounds steam by factor for desired condition shown in table on Page 9.

No. 18 Multicell Unit Heater

Tested and rated in accordance with the standard code for testing and rating steam unit heaters, adopted January 1930 by the Industrial Unit Heater Association and the American Society of Heating and Ventilating Engineers.

R. P. M.	Motor H. P.	C. F. M. at Ent. Air Temp.	2 Pounds Steam				5 Pounds Steam			
			B. T. U. per Hr.	E. D. R.	Final Temp. Degrees F.	Cond. lb/Hr.	B. T. U. per Hr.	E. D. R	Final Temp. Degrees F.	Cond. lb/Hr.
Air Entering Heater 70 Degrees F.										
860	1/15	1074	72,500	302.0	131.5	75.0	75,900	316.0	134.9	79.0
1140	1/6	1425	90,100	375.5	128.2	93.2	95,000	396.0	131.3	98.8
1440*	1/6	1425	90,100	375.5	128.2	93.2	95,000	396.0	131.3	98.8
Air Entering Heater 65 Degrees F.										
860	1/15	1074	75,000	312.1	128.6	77.6	79,000	329.0	132.0	82.2
1140	1/6	1425	94,200	392.1	125.2	97.6	99,100	413.0	128.3	103.0
1440*	1/6	1425	94,200	392.1	125.2	97.6	99,100	413.0	128.3	103.0
Air Entering Heater 60 Degrees F.										
860	1/15	1074	**78,200**	326.0	125.7	81.0	82,100	342.0	129.0	85.4
1140	1/6	1425	**98,100**	408.0	122.1	101.4	103,000	429.0	125.2	107.1
1440*	1/6	1425	**98,100**	408.0	122.1	101.4	103,000	429.0	125.2	107.1
Air Entering Heater 55 Degrees F.										
860	1/15	1074	81,300	338.5	122.7	84.1	85,500	356.0	126.1	89.0
1140	1/6	1425	102,200	426.0	119.1	106.0	107,100	446.0	122.2	111.3
1440*	1/6	1425	102,200	426.0	119.1	106.0	107,100	446.0	122.2	111.3
Air Entering Heater 50 Degrees F.										
860	1/15	1074	84,600	352.0	119.8	87.5	88,600	369.0	123.1	92.2
1140	1/6	1425	106,000	442.0	116.0	109.8	111,000	462.5	119.1	115.4
1440*	1/6	1425	106,000	442.0	116.0	109.8	111,000	462.5	119.1	115.4
Air Entering Heater 45 Degrees F.										
860	1/15	1074	88,000	366.1	116.9	91.0	92,100	384.0	120.2	95.9
1140	1/6	1425	110,500	460.0	113.0	114.4	115,600	481.0	116.1	120.1
1440*	1/6	1425	110,500	460.0	113.0	114.4	115,600	481.0	116.1	120.1
Air Entering Heater 40 Degrees F.										
860	1/15	1074	91,500	381.0	114.0	95.6	95,600	402.5	117.4	99.5
1140	1/6	1425	114,600	477.7	109.9	118.8	120,000	500.0	113.1	124.8
1440*	1/6	1425	114,600	477.7	109.9	118.8	120,000	500.0	113.1	124.8
Air Entering Heater 32 Degrees F.										
860	1/15	1074	97,100	405.0	109.2	101.5	101,000	422.5	112.6	105.5
1140	1/6	1425	121,700	507.0	105.0	126.0	127,000	529.0	108.3	132.1
1440*	1/6	1425	121,700	507.0	105.0	126.0	127,000	529.0	108.3	132.1
Air Entering Heater 0 Degrees F.										
860	1/15	1074	121,200	505.0	90.5	125.4	125,800	524.0	93.9	131.0
1140	1/6	1425	152,000	633.0	85.5	157.1	157,700	657.0	88.7	164.1
1440*	1/6	1425	152,000	633.0	85.5	157.1	157,700	657.0	88.7	164.1

To determine capacity at other steam pressures and entering air temperatures, multiply capacity for 60 degrees entering air and 2 pounds steam by factor for desired condition shown in table on Page 9.

*25 cycle motors only.

No. 180 Multicell Unit Heater

Tested and rated in accordance with the standard code for testing and rating steam unit heaters, adopted, January, 1930, by the Industrial Unit Heater Association and the American Society of Heating and Ventilating Engineers.

R. P. M.	Motor H. P.	C. F. M. at Ent. Temp.	2 Pounds Steam				5 Pounds Steam			
			B. T. U. per Hr.	E. D. R.	Final Temp. Degrees F.	Cond. lb / Hr.	B. T. U. per Hr.	E. D. R.	Final Temp. Degrees F.	Cond. lb / Hr.
Air Entering Heater 70 Degrees F.										
860	1/15	1288	87,600	365.0	132.8	90.6	92,500	386.0	136.1	96.2
1140	1/6	1705	109,200	456.0	129.1	113.1	115,100	480.0	132.1	120.0
1440*	1/6	1705	109,200	456.0	129.1	113.1	115,100	480.0	132.1	120.0
Air Entering Heater 65 Degrees F.										
860	1/15	1288	91,500	381.5	129.9	94.7	96,400	402.0	133.2	100.4
1140	1/6	1705	113,900	474.0	126.0	117.9	120,000	500.0	129.2	125.0
1440*	1/6	1705	113,900	474.0	126.0	117.9	120,000	500.0	129.2	125.0
Air Entering Heater 60 Degrees F.										
860	1/15	1288	95,500	389.0	126.9	98.8	100,300	417.5	130.3	104.4
1140	1/6	1705	118,900	495.0	122.9	123.0	124,800	520.0	126.1	129.9
1440*	1/6	1705	118,900	495.0	122.9	123.0	124,800	520.0	126.1	129.9
Air Entering Heater 55 Degrees F.										
860	1/15	1288	99,300	414.0	124.1	102.8	104,200	435.0	127.4	108.5
1140	1/6	1705	123,600	515.0	120.0	128.0	129,800	541.0	123.0	135.0
1440*	1/6	1705	123,600	515.0	120.0	128.0	129,800	541.0	123.0	135.0
Air Entering Heater 50 Degrees F.										
860	1/15	1288	103,600	432.0	121.2	107.1	108,500	452.5	124.5	113.0
1140	1/6	1705	128,900	537.0	116.9	133.4	134,900	562.5	120.0	140.4
1440*	1/6	1705	128,900	537.0	116.9	133.4	134,900	562.5	120.0	140.4
Air Entering Heater 45 Degrees F.										
860	1/15	1288	107,800	449.0	118.3	111.6	112,500	468.5	121.6	117.1
1140	1/6	1705	134,000	558.0	113.8	138.8	140,100	585.0	117.0	146.0
1440*	1/6	1705	134,000	558.0	113.8	138.8	140,100	585.0	117.0	146.0
Air Entering Heater 40 Degrees F.										
860	1/15	1288	111,800	466.0	115.3	115.8	116,900	487.0	118.6	121.7
1140	1/6	1705	139,000	579.0	110.8	143.9	145,300	606.0	113.9	151.3
1440*	1/6	1705	139,000	579.0	110.8	143.9	145,300	606.0	113.9	151.3
Air Entering Heater 32 Degrees F.										
860	1/15	1288	118,700	495.0	110.8	123.0	124,000	517.5	114.0	129.1
1140	1/6	1705	147,700	616.0	106.1	153.0	154,300	644.0	109.1	160.8
1440*	1/6	1705	147,700	616.0	106.1	153.0	154,300	644.0	109.1	160.8
Air Entering Heater 0 Degrees F.										
860	1/15	1288	148,500	619.0	92.2	153.9	154,200	643.5	95.6	160.7
1140	1/6	1705	184,900	770.0	86.6	191.3	192,000	800.0	89.9	200.0
1440*	1/6	1705	184,900	770.0	86.6	191.3	192,000	800.0	89.9	200.0

To determine capacity at other steam pressures and entering air temperatures, multiply capacity for 60 degrees entering air and 2 pounds steam by factor for desired condition shown in table on Page 9.

*25 cycle motors only.

No. 24 Multicell Unit Heater

Tested and rated in accordance with the standard code for testing and rating steam unit heaters, adopted January 1930 by the Industrial Unit Heater Association and the American Society of Heating and Ventilating Engineers.

R. P. M.	Motor H. P.	C. F. M. at Ent. Temp.	2 Pounds Steam				5 Pounds Steam			
			B. T. U. per Hr.	E. D. R.	Final Temp. Degrees F.	Cond. lb/Hr.	B. T. U. per Hr.	E. D. R.	Final Temp. Degrees F.	Cond. lb/Hr.
Air Entering Heater 70 Degrees F.										
860	1/4	2560	152,100	634.0	124.6	157.5	161,500	674.0	128.0	168.0
1140	1/2	3380	190,000	791.0	121.7	196.8	200,800	835.0	124.6	209.0
1440*	1/2	3380	190,000	791.0	121.7	196.8	200,800	835.0	124.6	209.0
Air Entering Heater 65 Degrees F.										
860	1/4	2560	159,000	662.0	121.5	164.7	167,400	698.0	124.5	174.2
1140	1/2	3380	198,200	825.0	118.4	205.1	209,000	870.0	121.4	217.5
1440*	1/2	3380	198,200	825.0	118.4	205.1	209,000	870.0	121.4	217.5
Air Entering Heater 60 Degrees F.										
860	1/4	2560	**165,800**	691.0	118.3	171.8	174,000	725.0	121.4	181.0
1140	1/2	3380	**207,000**	862.0	115.4	214.1	217,200	905.0	118.0	226.2
1440*	1/2	3380	**207,000**	862.0	115.4	214.1	217,200	905.0	118.0	226.2
Air Entering Heater 55 Degrees F.										
860	1/4	2560	172,200	717.0	115.1	178.2	181,000	754.0	118.1	188.4
1140	1/2	3380	215,100	897.0	111.9	223.0	226,000	941.0	114.8	235.0
1440*	1/2	3380	215,100	897.0	111.9	223.0	226,000	941.0	114.8	235.0
Air Entering Heater 50 Degrees F.										
860	1/4	2560	179,800	749.0	112.2	186.0	188,000	783.0	115.0	195.8
1140	1/2	3380	224,500	935.0	108.9	232.5	235,000	979.0	111.6	244.8
1440*	1/2	3380	224,500	935.0	108.9	232.5	235,000	979.0	111.6	244.8
Air Entering Heater 45 Degrees F.										
860	1/4	2560	187,000	779.0	109.1	193.7	195,200	813.0	111.7	203.0
1140	1/2	3380	233,000	970.0	105.5	241.0	244,000	1017.0	108.3	254.0
1440*	1/2	3380	233,000	970.0	105.5	241.0	244,000	1017.0	108.3	254.0
Air Entering Heater 40 Degrees F.										
860	1/4	2560	194,000	808.0	105.8	201.0	202,800	845.0	108.7	211.0
1140	1/2	3380	242,000	1009.0	102.2	251.0	253,000	1055.0	105.1	263.0
1440*	1/2	3380	242,000	1009.0	102.2	251.0	253,000	1055.0	105.1	263.0
Air Entering Heater 32 Degrees F.										
860	1/4	2560	206,000	858.0	100.8	213.0	216,000	900.0	104.1	225.0
1140	1/2	3380	257,400	1070.0	97.1	266.5	268,500	1120.0	99.9	279.5
1440*	1/2	3380	257,400	1070.0	97.1	266.5	268,500	1120.0	99.9	279.5
Air Entering Heater 0 Degrees F.										
860	1/4	2560	258,000	1075.0	80.7	267.0	269,500	1120.0	84.2	280.0
1140	1/2	3380	322,000	1341.0	76.3	333.0	334,000	1392.0	79.1	348.0
1440*	1/2	3380	322,000	1341.0	76.3	333.0	334,000	1392.0	79.1	348.0

To determine capacity at other steam pressures and entering air temperatures, multiply capacity for 60 degrees entering air and 2 pounds steam by factor for desired condition shown in table on Page 9.

*25 cycle motors only.

B. T. U. Factors for Multicell Unit Heaters

Temperature of Air Entering Heater Degrees	Steam Pressure—Pounds per Square Inch Gauge											
	0 Lb.	2 Lbs.	5 Lbs.	10 Lbs.	15 Lbs.	20 Lbs.	25 Lbs.	30 Lbs.	35 Lbs.	40 Lbs.	45 Lbs.	50 Lbs.
0	1.509	1.555	1.614	1.700	1.778	1.841	1.900	1.948	2.000	2.040	2.075	2.120
5	1.455	1.505	1.560	1.646	1.724	1.787	1.844	1.890	1.940	1.982	2.020	2.061
10	1.405	1.452	1.510	1.592	1.670	1.732	1.789	1.839	1.888	1.927	1.961	1.996
15	1.355	1.405	1.460	1.542	1.620	1.680	1.735	1.783	1.832	1.872	1.909	1.949
20	1.308	1.356	1.410	1.491	1.569	1.630	1.682	1.730	1.780	1.820	1.854	1.895
25	1.260	1.305	1.362	1.442	1.519	1.579	1.631	1.680	1.728	1.768	1.800	1.842
30	1.214	1.261	1.315	1.395	1.469	1.530	1.582	1.629	1.675	1.715	1.750	1.789
32	1.195	1.242	1.298	1.378	1.450	1.510	1.564	1.610	1.656	1.696	1.730	1.770
35	1.170	1.215	1.270	1.348	1.420	1.480	1.531	1.580	1.625	1.667	1.698	1.739
40	1.125	1.170	1.223	1.300	1.373	1.430	1.486	1.530	1.577	1.617	1.649	1.689
45	1.081	1.127	1.179	1.257	1.328	1.385	1.438	1.483	1.528	1.568	1.600	1.640
50	1.039	1.084	1.135	1.210	1.281	1.340	1.391	1.436	1.480	1.520	1.552	1.590
55	.996	1.040	1.091	1.169	1.239	1.295	1.346	1.390	1.436	1.473	1.505	1.542
60	.995	**1.000**	1.050	1.125	1.195	1.251	1.301	1.346	1.391	1.428	1.460	1.497
65	.915	.958	1.010	1.085	1.152	1.209	1.259	1.302	1.345	1.382	1.414	1.450
70	.875	.918	.968	1.042	1.110	1.168	1.216	1.259	1.301	1.340	1.370	1.406
75	.836	.880	.929	1.002	1.070	1.124	1.173	1.217	1.260	1.296	1.328	1.364
80	.799	.842	.889	.962	1.029	1.083	1.132	1.174	1.217	1.253	1.285	1.320

Note—To obtain the B.T.U. capacity for conditions other than those in the rating tables, multiply the 2 pounds steam 60° entering air rating by the proper constant from the above table.

Example—Find the capacity of a No. 18 Multicell Unit Heater operating at 1440 R.P.M. when supplied with steam at 40 pounds steam pressure and with air entering at 10° F.

Capacity of this Unit at 2 pounds steam and 60° entering air 1440 R.P.M. = 98,100 B.T.U. per hour (see rating tables). Factor for 40 pounds and 10° F. entering air = 1.927. 98,100 × 1.927 = 189,000 B.T.U.

Temperature Difference Factors for Multicell Unit Heaters

Temperature of Air Entering Heater Degrees	Steam Pressure—Pounds per Square Inch Gauge											
	0 Lb.	2 Lbs.	5 Lbs.	10 Lbs.	15 Lbs.	20 Lbs.	25 Lbs.	30 Lbs.	35 Lbs.	40 Lbs.	45 Lbs.	50 Lbs.
0	1.332	1.379	1.430	1.501	1.572	1.630	1.680	1.722	1.770	1.808	1.838	1.872
5	1.302	1.348	1.396	1.471	1.541	1.598	1.650	1.691	1.735	1.775	1.805	1.841
10	1.271	1.315	1.365	1.440	1.510	1.566	1.619	1.660	1.703	1.744	1.774	1.810
15	1.240	1.282	1.334	1.410	1.479	1.534	1.587	1.630	1.671	1.711	1.742	1.780
20	1.209	1.251	1.302	1.379	1.448	1.502	1.555	1.599	1.640	1.680	1.711	1.750
25	1.178	1.220	1.270	1.346	1.416	1.471	1.522	1.566	1.610	1.650	1.680	1.720
30	1.145	1.190	1.240	1.315	1.383	1.440	1.491	1.535	1.580	1.619	1.650	1.688
32	1.131	1.178	1.226	1.301	1.371	1.428	1.480	1.521	1.565	1.605	1.635	1.675
35	1.120	1.159	1.209	1.282	1.351	1.410	1.460	1.502	1.547	1.586	1.619	1.656
40	1.081	1.126	1.176	1.251	1.320	1.378	1.429	1.471	1.516	1.555	1.585	1.625
45	1.050	1.095	1.145	1.220	1.290	1.345	1.398	1.440	1.483	1.522	1.555	1.592
50	1.020	1.064	1.112	1.190	1.258	1.313	1.365	1.408	1.451	1.491	1.521	1.560
55	.989	1.032	1.081	1.157	1.226	1.281	1.331	1.378	1.420	1.460	1.490	1.530
60	.956	**1.000**	1.050	1.125	1.194	1.251	1.301	1.345	1.390	1.430	1.460	1.500
65	.925	.970	1.020	1.094	1.161	1.220	1.270	1.314	1.356	1.396	1.429	1.470
70	.892	.939	.987	1.061	1.130	1.188	1.239	1.281	1.325	1.364	1.396	1.435
75	.861	.906	.955	1.030	1.099	1.155	1.206	1.251	1.292	1.332	1.365	1.405
80	.830	.875	.924	1.000	1.068	1.124	1.172	1.220	1.261	1.301	1.331	1.372

Note—To obtain the final temperature for conditions other than those given in the rating tables, multiply the temperature difference of the 2 pound steam and 60° entering air rating by the proper factor from the above table.

Example—Find the final temperature for a No. 18 Multicell Unit Heater operating at 1440 R.P.M. when supplied with steam at 40 pounds steam pressure and with 10° F. entering air.

Final temperature for this unit at 2 pounds steam and 60° entering air, 1440 R.P.M. = 122.1° F. (see rating tables).

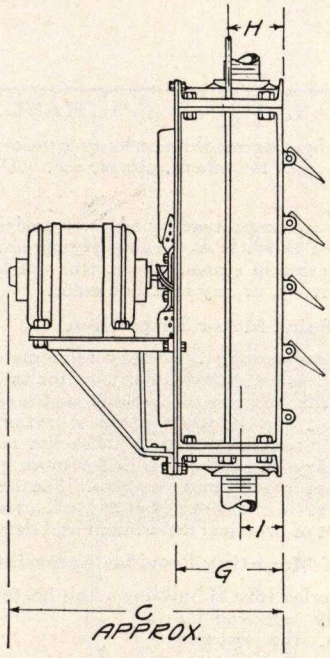
Temp. Diff. = 122.1° − 60° = 62.1° F.

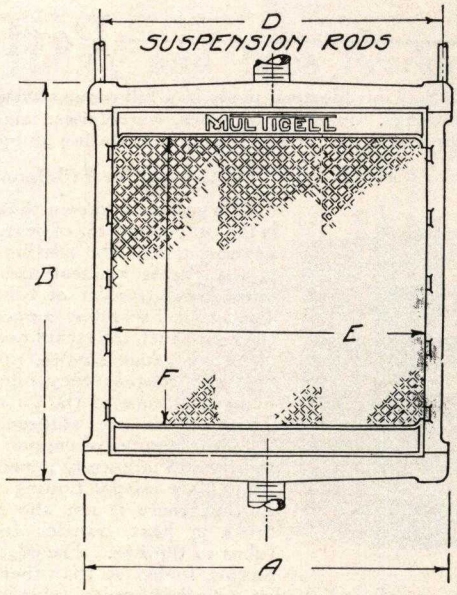
Factor for 40 pounds steam pressure and 10° F. entering air = 1.744.

New Temp. Diff. = 62.1° × 1.744 = 108.4°.

Final Temp. = 10° + 108.4° = 118.4°.

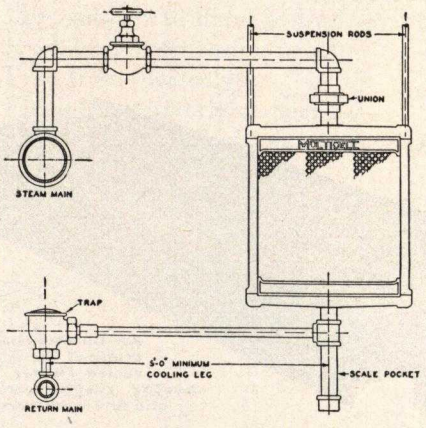
Dimensions of Multicell Unit Heaters



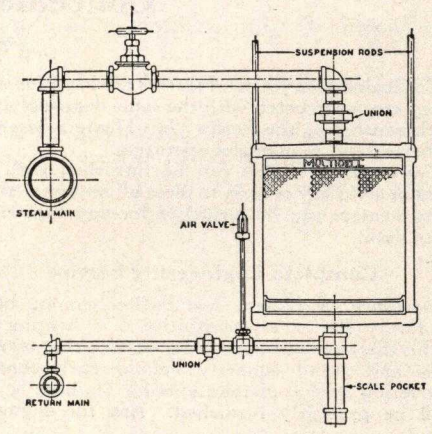


No. of Unit Heater	Characteristic Speed	Shpg. Weight	Net Weight	Tapping		Dia. of Fan	Dimensions								
				Flow	Return		A	B	C	D	E	F	G	H	I
13-B	Const.		86	1¼	1¼	12	15	19	15½	14	13 1/16	13 3/16	6	3	2⅜
	Var.		97	1¼	1¼	12	15	19	15½	14	13 1/16	13 3/16	6	3	2⅜
18	Const.		135	2	2	18	21¾	24⅝	16	20¾	19¼	17¼	6½	3¼	2½
	Var.		173	2	2	18	21¾	24⅝	16	20¾	19¼	17¼	6½	3¼	2½
180	Const.		179	2½	2½	18	28⅛	24⅝	16½	27¼	25⅝	17¼	6½	3¼	2¼
	Var.		217	2½	2½	18	28⅛	24⅝	16½	27¼	25⅝	17¼	6½	3¼	2¼
24	Const.		259	2½	½	24	28⅛	31¾	19½	27¼	25⅝	24	6½	5½	2¼
	Var.		291	2½	2½	24	28⅛	31¾	21	27¼	25⅝	24	6½	5½	2¼

Piping Diagrams for Multicell Unit Heaters



VACUUM RETURN SYSTEM



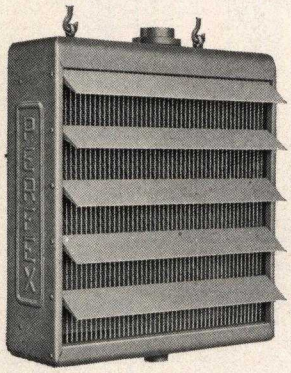
GRAVITY RETURN SYSTEM

PERFEX CORPORATION MILWAUKEE, WIS.

Heater Division—415 West Oklahoma Place

Perfex Uniheat

PRODUCTS—Unit Heaters, made in a full range of sizes, for economically and efficiently heating medium or large interiors, such as industrial buildings, foundries, factories, warehouses, large garages, hangars, etc., down to sizes for offices, stores, etc. Also manufacturers of process cores for all types of pre-heating and process work.



Copper for Efficiency

It is generally known that copper is the best conductor of heat, and its use throughout the heating section of the Perfex Uniheat assures the most rapid transfer of heat units. The vertical seamless copper tubes, through which the steam passes, are of heavy gauge copper, uniformly flattened so that they offer minimum resistance to the air current. These tubes are staggered, and the large number of copper fins are tightly and uniformly joined to the tubes by a special tinning process, so that there is not the slightest break in heat transfer from the tubes to the fins. The edges of the fins are folded so that there is far less tendency to collect lint, dirt, or other foreign substance that might otherwise clog air passages between fins.

The use of ductile, non-corrosive copper is not confined to the tubular section of the core. Both the inlet and return headers are sturdy bronze alloy castings with the result that all prime surfaces, from inlet to outlet are copper or bronze. Those who have experienced the troubles caused by rusting and corrosion of headers of other materials will at once recognize the great advantage of using bronze alloy headers.

Special Brazing Adds Strength

No less important is the manner of attaching the headers to the header plates and the plates to the vertical tubes. A special brazing process, designed so as not to weaken or distort the tubes, forms the heating section into one integral copper-bronze unit wherein every part possesses equal strength. Even freezing in service does not damage this sturdy unit, and each unit is tested at the factory, by three separate and exhaustive tests, with the result that it is definitely guaranteed to withstand a constant working steam pressure up to 125 pounds.

Trim, Sturdy Housing

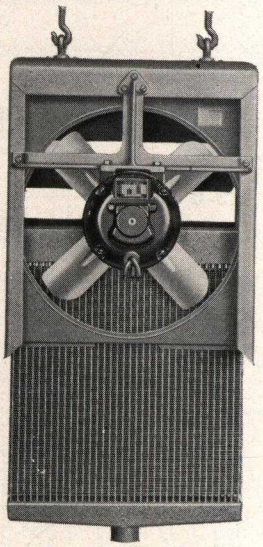
The assembly of the Perfex Uniheat is in keeping with the advanced construction of the heating section. The housing or cabinet is of extra heavy gauge steel with rounded corners and recessed panels. There are no protruding edges or unsightly bolts or rivets. The standard finish is a durable sage-green lacquer. Smaller units for installation in stores, offices, etc., are finished in mahogany, walnut, old ivory, or any specified color.

Three Point Motor Suspension

Particularly outstanding among the many refinements of the Perfex Uniheat is the bracket on which the motor is mounted. This bracket employs the modern three-point suspension which assures perfect alignment and greatly reduces vibration, making the operation practically noiseless. On this bracket is mounted a motor of highest quality—a motor that is far more generously rated than is the usual motor used in unit heaters. The design of the fan, pitch of blades, and ratio of motor power to fan load in different sizes of units is the result of practical experiment and development.

Ideal Method of Mounting Provides Accessibility

In keeping with the Perfex Idea of building a unit heater in which the core can be readily removed for cleaning or inspection, the housing is suspended from the ceiling or roof of the building by rods attached to eyebolts on the top of the unit. In this way all weight on the steam line is avoided and steam line expansion strain is not transmitted to the heating section. The heating element is suspended from the top of the unit by a lock washer, and is free at the bottom, thus permitting expansion and contraction and avoiding strains on the tube connections.



Core Easily Removed

The illustration at right brings out the ease with which the core of the Perfex Uniheat is removed from the housing. It is only necessary to take out four machine screws, remove the bottom of the housing and remove the inlet collar. The core is then easily taken from the housing, leaving the cabinet and motor assembly suspended by the ceiling hooks, without any change in adjustment of the louvres or removal of the other parts.

Concealed Convection Heaters

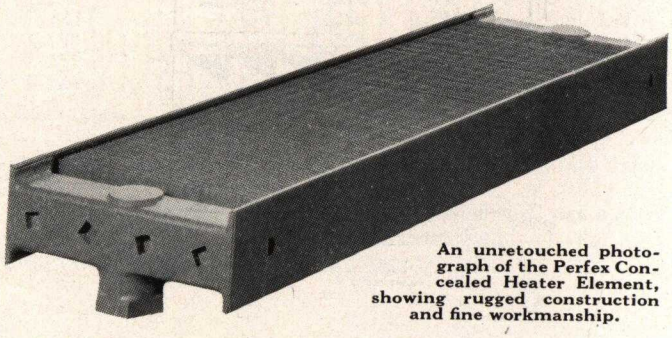
With or Without Cabinets

Perfex Concealed Convection Heaters are ideal for wall installations. They are constructed with the same degree of accuracy and careful workmanship as the Perfex Unit Heaters described above, assuring efficient and economical operation.

Perfex Convection Heaters can be furnished with or without cabinets and in a variety of sizes to meet all requirements. Special cabinets and heaters can be furnished for any type of job. Ask for complete data.

Complete Engineering Service

The importance of correct installation cannot be over emphasized. Every Perfex representative is a heating expert and also has at his disposal an engineering service that is ready to plan installations and stand squarely behind each completed job. Sketches covering special installations for Uniheat or Convection heaters will be promptly furnished. Ask for engineering data books.



An unretouched photograph of the Perfex Concealed Heater Element, showing rugged construction and fine workmanship.

"Heat Radiation Specialists for Over Twenty Years"

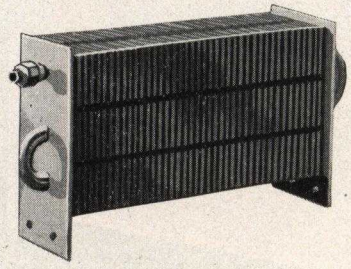
WOLVERINE TUBE COMPANY DETROIT, MICH.

General Offices: 1411 Central Avenue

Agents in All Principal Cities

Seamless Copper, Aluminum, Brass Tubing and Tube Products

Copper Radiation



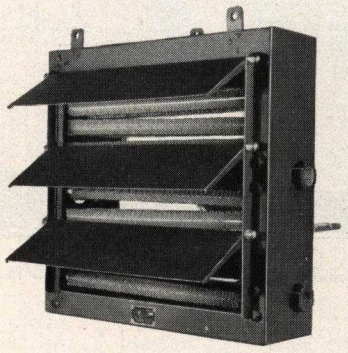
The Quick Facts

1. Vertical fins only—free circulation—better flue action.
2. One-piece seamless copper tube.
3. Freeze-proof and rust-proof.
4. Completely self-draining.
5. For steam, hot water or vapor.
6. Only 1–10 the weight of cast iron.
7. Greatest radiation per cubic foot of space.
8. Take any standard recess box.
9. Only 3¼-inch thick—fit in any 4-inch wall.
10. Tested to 100 pounds pressure.
11. Priced to compare with iron.

17 sizes from 12 inches to 60 inches.

Send For Specfications and Prices.

Unit Heaters



The Quick Facts

1. 3-Point suspension for unit.
2. Multiple intakes and outlets.
3. Completely self-draining.
4. Minimum static resistance.
5. Single length seamless copper tubing.
6. Tested to 500 pounds hydraulic pressure.
7. Minimum power consumption.
8. Steam pressure 5-150 pounds. All sizes.
9. Stirrup hangers permit free expansion and contraction of tubing, its entire length, eliminating leaks.
10. 6 Sizes, 12 models, ranging in capacity from 40,000 B.T.U. per hour to 5 million B.T.U. per hour.

Fan Equipment Optional.

Wolverine Copper Service Pipe

The Quick Facts

1. Uniform inside and outside expansion under heat.
2. Less subject to damage by freezing.
3. Rust-proof—corrosion-proof—acid-resisting.
4. Free from electrolysis.
5. Flexible—perfectly annealed.
6. Proof against vibration, sagging, splitting, flattening and cracking.
7. Tested to 3000 pounds water pressure.
8. Sized for standard compression fittings—tested to 2500 pounds pull.
9. Installation requires only 5 simple tools—and saves 1–3 time.
10. Requires less fittings, less labor, less cutting of walls and floors.
11. Assures unvarying flow always.
12. Larger flow for equal diameter.

Wolverine Copper Service Pipe now approved for general use in practically every city.

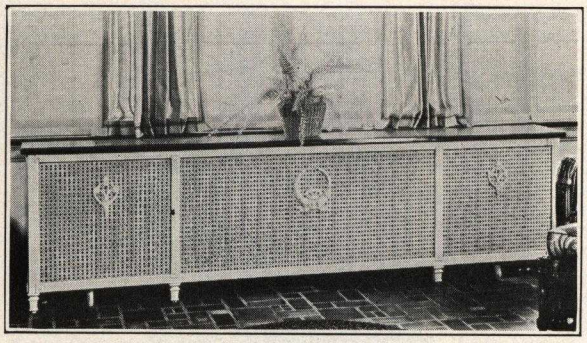
Nominal Size Inches	Outside Diameter Inches	Wall Thickness Inches	Weight per Foot in Pounds
⅛	.250	.032	.085
¼	.375	.035	.143
⅜	.500	.049	.269
½	.625	.049	.343
⅝	.750	.049	.418

Nominal Size Inches	Outside Diameter Inches	Wall Thickness Inches	Weight per Foot in Pounds
¾	.875	.065	.641
1	1.125	.065	.839
1¼	1.375	.065	1.04
1½	1.625	.072	1.36
2	2.125	.083	2.06

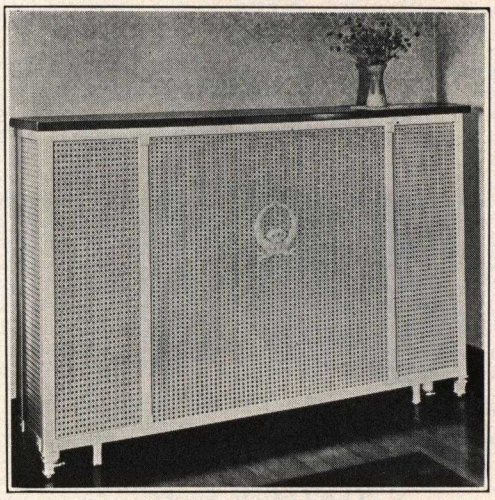
AMERICA HEATING & SUPPLY CO. ROCKFORD, ILL.

630 Race Street

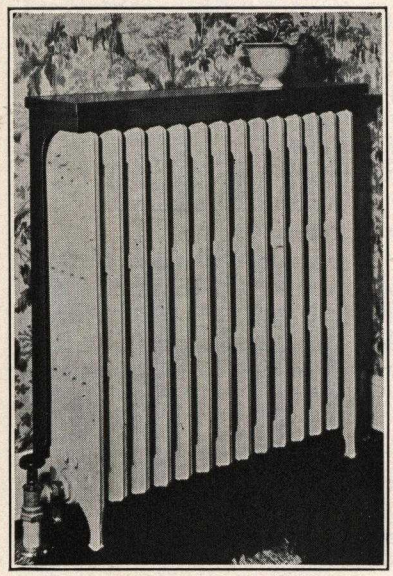
America Radiator Enclosures and Covers



America Enclosure on a low window radiator



America Enclosure on a large high radiator
Imitation Cane Grille—Wood Grained Top



America Radiator Cover



Radiator Cover with Top Open—Showing Construction and Water Pan

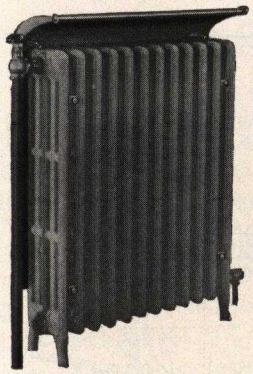
America Radiator Enclosures and Covers are made for beauty and service as well as wall protection. They are constructed of heavy gauge furniture steel and are strong enough for use as seats or shelves. Vapor Pans holding a generous amount of water are included in all covers and enclosures. These pans are so located that the warm air can circulate freely around them—thus absorbing the most moisture with the least resistance. The perforated steel imitation cane grille is the most popular type for enclosures but various designs can be furnished at a slight advance in price. Rod grilles of any design can be furnished if desired.

Wood grain, plain colors or combinations of any kind can be used in the finish of the enclosure or cover. Although the finish is a matter of individual taste we recommend that plain colors be used which will match or blend with the walls. Those shown have a plain ivory body to match the walls and a walnut grained top to match the woodwork of the room. Any of our products can be shipped without any finish to be decorated on the job if desired.

All of our products are made to order from your measurements. We cannot be responsible when incorrect measurements are given. Material not subject to return and orders started are not subject to cancellations except on terms which protect us against all loss.

America Radiator Shields

America Radiator Shield Without Vapor Pan



AMERICA Shields with or without vapor pans are adapted for use on low window radiators over which curtains are hung.

America Shields are neat in appearance and are very easily attached or taken off radiators. They do not interfere with the operation of the radiator valves or air valves, side pieces being only two inches wide. The shields extend down the back of the radiators to a point about 7 inches above the floor, thus giving complete protection to the wall against streaks of dirt which are always found above shorter shields which do not control the entire air travel over the radiator.

America Radiator Shield With Vapor Pan



The Vapor Pan Shield contains a removable receptacle for water, thus combining the best features of a dust deflector and a humidifier. It is well made with a view to giving first-class service and is of excellent style and finish. This shield is very desirable for use in localities where the air is abnormally dry, or in stores wherein delicate merchandise easily affected by dry atmospheric conditions requires extra humidity.

Specifications

These specifications apply to nearly all kinds of cast iron radiation.

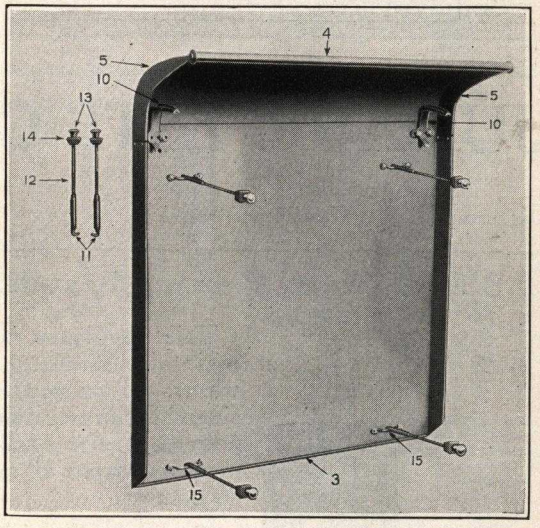
	3-Tube	4-Tube	5-Tube	6-Tube	7-Tube
Hood projects in front of radiator	¾ in.	⅞ in.	¾ in.	*¾ in.	½ in.
Distance, top of head to top of radiator	2¾ in.	4 in.	4¼ in.	4¼ in.	4½ in.

Shield extends down back of radiator to about 7 inches from floor.
*Front of hood is this distance back of front of radiator on 6-Tube.
Shields for Window Radiators are same as those specified for 7-Tube pattern, except that front of hood is flush with front of radiator.

List Prices

Height of Radiator Inches	26 or lower 5 sec. or less	32 and 38 5 sec. or less	44 5 sec. or less	
Shields, from Black Sheets	$ 6.00	$ 6.40	$ 6.80	Radiators larger than 5 sec. add 20c for each additional section.
Shields, from Galvanized Sheets	7.20	7.60	8.00	Radiators larger than 5 sec. add 24c for each additional section.
Brass or Copper having Galvanized Iron Backs	34.00	34.80	35.20	Radiators larger than 5 sec. add 80c for each additional section.
Black Shields with Wood Grain Finish	11.50	11.90	12.30	Radiators larger than 5 sec. add 80c for each additional section.
All Brass or Copper	36.00	38.00	39.20	Radiators larger than 5 sec. add $1.20 for each additional section.
Black Painted or Bronzed Plain Colors	8.00	8.40	8.80	Radiators larger than 5 sec. add 60c for each additional section.
Galvanized, Painted or Bronzed Plain Colors	9.20	9.60	10.00	Radiators larger than 5 sec. add 64c for each additional section.

Shields painted to order to match decorations at extra charge.
For Vapor Pan add $4.00 to list prices; over 20 sections, add $6.00.



Vapor Pan Shield

Instructions for Ordering

1. Material to be used, black or galvanized sheets.
2. With or without vapor pan.
3. Style of radiator and height.
4. Number and width of sections.
5. Length of radiator.

Radiator Shields are sold f. o. b. Rockford, Ill.

Orders entered upon our books cannot be countermanded except with our consent, and upon terms that will indemnify us against all loss.

Our goods are guaranteed only to the extent of furnishing new parts for any found defective in manufacture or construction. Shields are not to be returned except with our permission.

In estimating cost of shields for **Wall** or **Pipe** radiators, figure two and one-half (2½) inches as being equal to one (1) section.

No hangers, whatever, are regularly furnished with shields to fit **Wall** radiators, as shield usually can be supported by the hangers that hold radiator in place.

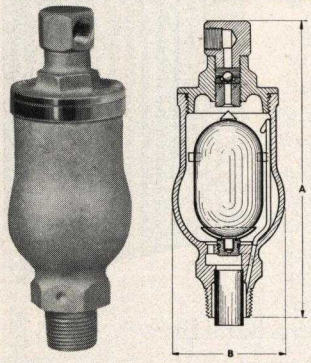
TERMS: Thirty (30) days or two (2) per cent for cash within ten days from date of shipment.



Showing Vapor Pan Withdrawn for Filling

AUTOMATIC PRIMER COMPANY — CHICAGO, ILL.

Main Office—111 West Washington Street



Exterior and Sectional View of Valves Nos. 50 and 60

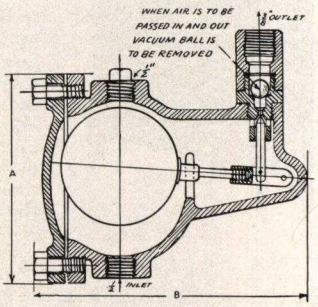
Apco Automatic Air Relief Valves

The Apco Air Relief Valves are scientifically constructed, simple and compact, operate continuously without attention and are moderate in price.

Apco Valves are made in a variety of sizes and capacities so as to take care of pressures from 10 to 200 pounds (see table). Can also be furnished to operate at pressures as high as 500 pounds.

Apco Air Relief Valves can be used to advantage in many types of installations. Following are a few of their most important applications. On Piping Systems—On risers and summits of forced hot water heating systems—For increasing the circulation of hot water supply systems—for use on pumps and pumping systems—for relieving excessive pressure on domestic hot water supply systems — in fact for practically any use where air is to be relieved at various pressures.

Apco Valves are guaranteed to give continuous service without further attention after being installed in a size and capacity suited to the conditions. Normally made of bronze or iron, depending upon the size and service, but can be made of other metals for special conditions when specified. All valves can be furnished with vacuum balls.



Sectional View of Valve No. 55

Sizes, Capacities and Prices of Apco Automatic Air Relief Valves

Valve Number	Size Inches	Dimensions A Inches	Dimensions B Inches	Weight Pounds	Venting Capacities At Various Pressures in Cubic Feet of Air Per Minute 10 lbs.	30 lbs.	60 lbs.	75 lbs.	100 lbs.	125 lbs.	150 lbs.	200 lbs.	Price
50	⅜	5¾	2¼	2	2	3	4	.....	.....	.....	.....	.....	$7.50
55	½	4½	6	5½	1	2	3	4	5	6	7	.....	15.00
60	¾	6⅜	2½	2½	3	4	5	.....	.....	.....	.....	.....	10.00
70	1	8½	3½	4	5	10	20	30	40	50	.....	.....	22.50
100	1½	8¼	10	20	10	15	20	30	40	50	60	.....	25.00
110	1½	10 11/16	5 7/16	21	.....	.....	.....	.....	14	16	18	20	30.00

Valves Nos. 50, 60 and 70 are all bronze construction. Valves Nos. 55, 100, and 110, have cast iron bodies, but can be furnished in bronze when so specified. Any of the Valves here listed can be furnished in special materials for resistance to corrosive liquids.

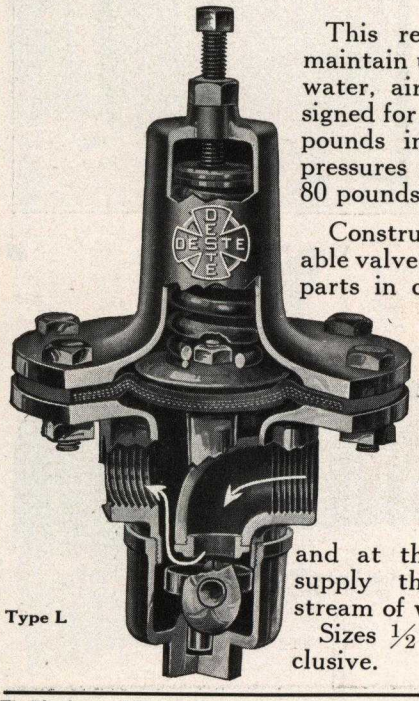
Also manufacturers of the Apco Primer for centrifugal pumps for use on suction lifts. Good for automatic or remote control.

JULIAN D'ESTE COMPANY — BOSTON, MASS.

Established 1870
Representatives in Principal Cities

Cambridge and Spice Streets
(Charlestown District)

D'ESTE Water Pressure Regulator



Type L

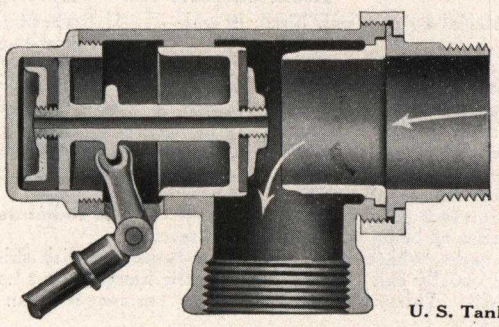
This regulator will maintain uniform pressure on water, air or gas. It is designed for pressures up to 150 pounds initial and delivery pressures from 10 pounds to 80 pounds.

Constructed with removable valve and seat. All metal parts in contact with water are bronze. Prevents excessive wear on plumbing fixtures, eliminates splashing in bathrooms and sinks, stops water hammer in pipe lines and at the same time will supply the desired steady stream of water.

Sizes ½ to 1½ inches, inclusive.

U. S. Tank Valve

The U. S. Tank Valve will automatically maintain a constant water level in a tank. It is simple in construction and positive in action. Entire valve is constructed of bronze including bronze seat which is readily renewable. Has full size waterway, is noiseless in operation, and float mechanism is adjustable, enabling the water level to be set at any desired depth. Is guaranteed to be absolutely tight under all pressures, and is not affected by pump pulsations. For cold water service. Sizes ¾ to 4 inches, inclusive.



U. S. Tank Valve

ACKERMAN-JOHNSON COMPANY CHICAGO, ILL.

625 West Jackson Boulevard

Expansive Screw Anchors, Expansion Bolts, Concrete Inserts

Products

Ackerman-Johnson Expansive Screw Anchor; Expansion Bolts; Concrete Inserts. U. S. Patents: April 27, 1915, December 21, 1915, April 4, 1916, May 14, 1918; others pending. Patented in Canada, Great Britain, France, Belgium; others pending.

Ackerman-Johnson Expansive Screw Anchor

Adaptability—For attaching objects to hard materials, as concrete, brick, stone, tile, marble, etc.

Description and Operation—Consists of a doubly tapered internally threaded cone made of brass, iron or steel (Fig. 1), within a lead composition ductile sleeve (Fig. 2). These are assembled at the factory, the sleeve being forced on the cone to a normal position as at Fig. 3.



Fig. 1



Fig. 2



Fig. 3

Ackerman-Johnson Expansive Screw Anchor

When installed as illustrated, the sleeve is driven farther toward base of the cone and is expanded generally to any degree required to swedge tightly against the sides of hole, effecting perfect holding contact throughout the length and circumference of the anchor. Thus consolidated with the wall material, the anchor provides a machine threaded hole the same as an ordinary tapped hole in a machine part. Any object may then be attached with a standard screw or bolt of suitable diameter.

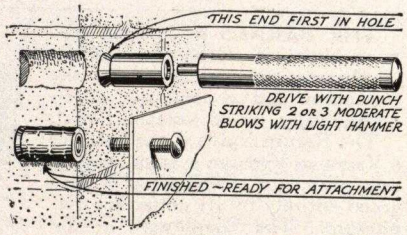


Fig. 4. Manner of Installing Anchor
The piloted setting punch supplied without charge with all anchors.

The heavier the load attached, the more forcible becomes the expansion, causing the anchor to resist effort to pull it out far beyond the tensile strength of any screw or bolt.

Distinctive Advantages—Time saving through the use of Ackerman-Johnson anchors compared with old methods more than compensates their total cost.

They save much of drilling cost, requiring least depth for any stated load. They are installed instantly, without the aid of the screw, and before the fixture is lifted into position to be fastened. Their margin of safety is equal to that of steel bolts of correlating size.

They necessitate the least displacement of wall material and consequently less injury to buildings. They effect the neatest possible workmanship.

Sizes—The size of anchor is designated as the size of the bolt or screw to be used. Example: For No. 10-24 screw, use No. 10-24 anchor; for 3/8-inch bolts use 3/8-inch anchor.

Sizes, Expansive Screw Anchors

Screw or Bolt Sizes Inches	Threads per Inch	Minimum Dimensions of Holes Required, Inches		Specify Anchor Size No.
		Diameter	Depth	
No. 6	32	1/4	3/8	6–32
No. 8	32	5/16	1/2	8–32
No. 10	24	3/8	5/8	10–24
No. 12	24	7/16	3/4	12–24
1/4	20	1/2	7/8	1/4–20
5/16	18	5/8	1	5/16–18
3/8	16	3/4	1 1/4	3/8–16
7/16	14	7/8	1 1/2	7/16–14
1/2	13	7/8	1 1/2	1/2–13
5/8	11	1 1/8	2	5/8–11

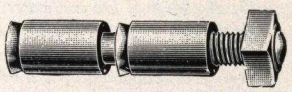
Packed 50 or 100 in box.

Stud Type Expansion Bolts

So great is the holding power of this anchorage, that when set in strong stone or concrete with only its one primary sleeve expanded, the bolt shank can be pulled in two, without the anchorage yielding.

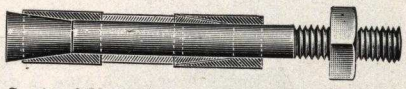


Bolt with Primary Expansive Sleeve Only



Bolt with Primary and One Secondary Expansive Unit

Secondary Expansive Units—Made up of an expansive sleeve and a slip steel cone, giving additional anchorage equal to the primary unit. Calculate the minimum depth of holes for setting at twice the diameter of hole drilled.



Sectional View Showing Bolt with Primary Expansion Sleeve, One Iron Spacing Sleeve, and One Secondary Expansive Unit

Fig. 5. Stud Type Expansion Bolt

Diameter of Bolt, at Thread.....Inches	1/4	3/8	1/2	5/8	3/4
Diam. for Hole. Inches	3/8	9/16	3/4	1	1 1/8
Lengths of Bolts in Inches.....	1 1/4	1 3/4	2 1/2	3 1/2	5
	1 1/2	2	3	4	6
	1 3/4	2 1/2	3 1/2	5	7 1/2
	2	3	4	6	9
	2 1/2	3 1/2	4 1/2	7 1/2	10
	3	4	5	9	12
	3 1/2	4 1/2	6	10 1/2	15
	4	....	7	12	18
	....	....	8	15	....

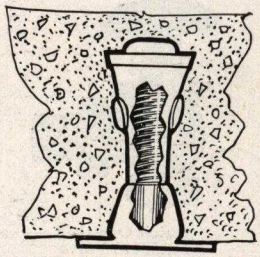
Concrete Inserts

The new Ackerman-Johnson concrete inserts for moulding into the concrete when poured, afford minimum displacement of the concrete and maximum speed in setting. Can be furnished for all sizes of screws and bolts up to 5/8-inch diameter.

We invite requests for full information concerning inserts.



Fig. 6 — Exterior View of New Ackerman - Johnson Concrete Insert and Cross Section showing insert embedded in concrete. Double Taper gives double strength.



Users of Ackerman-Johnson Products

Extensively adopted by leading contractors, manufacturers, railroads, shipyards, government departments and public utility companies.

BARNES & JONES INC. BOSTON, MASS.

128 Brookside Avenue—Jamaica Plain

Branch Offices and Representatives

Barnes & Jones, Inc., 101 Park Ave., Room 628, New York City, N. Y.
Arthur J. Sanford, 58 Weybosset St., Room 304, Providence, R. I.
L. C. Holmes, 918 Buchanan St., N. W., Washington, D. C.
S. R. Rente, 775 Main St., Sidway Bldg., Buffalo, N. Y.
Edwin Elliot & Co., 560 N. 16th St., Philadelphia, Pa.

VAPOR AND VACUUM SYSTEMS OF HEATING

Systems That Are Made To Go On a Job and Stay There

THE BARNES & JONES Modulation Systems of Vapor and Vacuum Steam Heating are the results of more than 30 years' experience as heating engineers, designers and manufacturers. The installation of a BARNES & JONES system insures the 12 all-important features of a satisfactory heating system.

1. *Positive circulation throughout the entire system at OUNCES instead of pounds pressure at the boiler.*
2. *Positive graduated heat control of each radiator by a BARNES & JONES Modulation Valve—each radiator may be heated either partially or wholly independently of every other radiator.*
3. *Positive elimination of air and water of condensation from each radiator through a BARNES & JONES Thermostatic Return Valve, which permits the discharge of air and water to the return line but prevents the passage of steam.*
4. *Positive return of water of condensation to the boiler, on open return line gravity installations, by a BARNES & JONES Condensator, regardless of the boiler pressure.*
5. *Positive and complete elimination of air from the entire system, through the BARNES & JONES Vent Trap, which is located in the basement.*
6. *Elimination of radiator air valves.*
7. *Elimination of water hammer, because all water and air are expelled from the radiators continually and cannot collect or pocket and cause water hammers.*
8. *Minimizing frictional losses by reaming all entrances to a coefficient of unity. Every part of BARNES & JONES apparatus is "Precision Made." Progressively designed, accurately built, multi-tested and carefully packed at the factory, which insures against failures.*
9. *A distinct advantage of an exceptionally low fuel consumption—an actual fuel saving in comparison with any ordinary system.*
10. *A technically educated and highly trained engineering organization to serve in an advisory and consulting capacity to engineers, contractors or users as to the most advantageous manner in which BARNES & JONES systems can be installed and operated or adapted to special installations.*
11. *A Service Department, who will furnish installation details and work with engineers, contractors or users. Our 30 years' experience in the development of heating apparatus places us in an unquestionable position to solve the intricate problems that our experience has shown us are likely to arise.*
12. *A BARNES & JONES System is truly a "System of No Regrets"—necessitating little or no servicing—which means a longer and cleaner profit for the contractor—a casual customer turned into a "Satisfied Client" and a "Boosting Friend."*



Modulation Valve

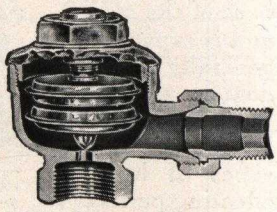
Size Valve Inches	Capacity Sq. Ft.
¾	60
1	100
1¼	180

THE BARNES & JONES Modulation Valve is designed to accurately regulate the admission of steam to the radiator. It can be operated to vary the amount of heating surface of the radiator to correspond with the temperature desired. It is used with equally satisfactory results on either open return line vapor or vacuum systems. All modulation valves are equipped with orifices when desired. This valve is constructed throughout of the highest grade composition steam metal, heavily nickel plated. All parts are machined and are interchangeable. The valve has a renewable disc seat, of the packless type, with quick opening, non-rising stem. It is made in angle and straightway patterns and in all sizes from ¾-inch to 1¼-inch, inclusive. It can be supplied in the standard lever handle type; hand wheel type; extension stem type; chain operated type or lock shield type.



Quick Opening Packless Valve

THE BARNES & JONES Quick Opening, Packless Valves are made in the same types and sizes as the Modulation Valves, but do not have the indicating dial feature. For sizes and capacities see table on Modulation Valves.



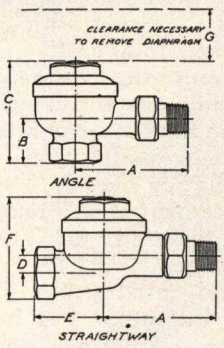
Radiator Trap

THE BARNES & JONES Return Valve is of the thermostatic diaphragm type, operated by the expansion and contraction of an hermetically sealed volatile liquid.

The Return Valve is the heart of a Vapor or Vacuum system, and its reliability and permanency is governed entirely by its actuating diaphragm. The Diaphragm in the BARNES & JONES Return Valve is the development of over 30 years' of scientific research and experimentation under the severest operating conditions. It employs engineering principles that have proved on the job to be far superior to any other diaphragm. We unqualifiedly believe it to be the longest life diaphragm on the market.

The Return Valve has a clear, free passage through it to prevent an accumulation of dirt or scale, and a large capacity. It is made in ½, ¾, 1 and 1¼-inch sizes. The ½-inch size has ¾-inch outlets, and is made in four types: Angle, straightway, right-hand and left-hand corners. The ¾, 1 and 1¼-inch sizes are made in angle and straightway patterns.

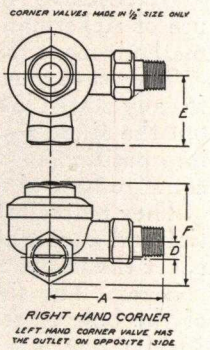
Please note that right and left-hand corner valves are made in ½-inch size only. Straightway valves are made in all sizes.



CAPACITIES			
SIZE VALVE	LBS WATER PER HOUR	30 FEET C I RAD.	30 FEET COILS
½"	30	120	100
¾"	80	320	240
1"	200	800	600
1¼"	400	1600	1200

DIMENSIONS							
SIZE VALVE	A	B	C	D	E	F	G
½	3½	1½	2⅜	½	2	3	1½
¾	3⅝	1⅝	3⅛	⅝	2⅛	3¼	1⅝
1	3⅝	1¼	3½	⅝	2⅜	3½	1⅝
1¼	3⅝	1⅝	3⅝	⅞	2½	4	2⅛

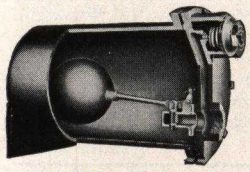
ALL STANDARD ½ TRAPS HAVE ½" UNION CONNECTIONS TO RADIATOR AND OUTLETS TAPPED FOR ⅜" PIPE



Send for Bulletin describing the complete Barnes & Jones Line

VAPOR AND VACUUM SYSTEMS OF HEATING

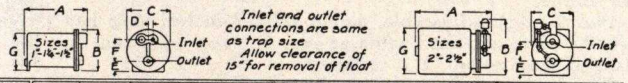
Systems That Are Made To Go On a Job and Stay There



Blast Trap

THE BARNES & JONES Blast Trap is designed with sufficient air and water capacity to handle the condensation from the largest vento stacks, dry kiln coils, hot water heaters and other units condensating large quantities of steam at low pressures. This Trap is for use on Vapor or Vacuum systems ONLY, where the return side is free from pressure and where the steam pressure on the inlet side does not exceed fifteen pounds.

It is a combination float and thermostatic trap, the discharge of the condensate being controlled by a float-operated valve—the air is exhausted through a thermostatic valve which prevents the passage of steam. The valve and working parts of this Blast Trap



Size Trap	A	B	C	D	E	F	G	Capacity Lbs water per hour	Net Weight	Shipping Weight
1"	15½"	10½"	10½"	1⅛"	2⅞"	5½"	9½"	1000	60	85
1¼"	15½"	10½"	10½"	1⅛"	2⅞"	5½"	9½"	2000	60	85
1½"	15½"	10½"	10½"	1⅛"	2⅞"	5½"	9½"	3000	60	85
2"	18½"	14⅜"	10¾"		3⅜"	5⅜"	11¾"	4000	110	160
2½"	18½"	14⅜"	10¾"		3⅜"	5⅜"	11¾"	5000	110	160

are made of the best grade of steam bronze. The head is attached to the body by bolts and by removing the bolts the body can be pulled away, leaving all of the working parts exposed to view, without breaking or removing pipe connections.



BD Trap

Dimensions

Over-all length. 9⅝ inches
Over-all width.. 4½ inches
Over-all height. 6½ inches
Weight.....15 pounds

THE BARNES & JONES BD Trap is designed to effectively handle the returns from UNIT HEATERS—whose requisites are—maximum capacity—minimum size—lightest weight—permanent reliability. This BD Trap incorporates—a capacity of 500 lbs. per hour at ½ lb. pressure—over-all size of 9⅝x6½x4½ inches—a weight of only 15 lbs. (which allows it to be hung on pipe connections, without other support)—a reliability backed by a complete research laboratory and a staff of engineers—permanency by the materials used, valve mechanism and valve seat of the best grade of steam bronze, valve of Everdur and float of copper.

This BD Trap can also be advantageously used and is recommended to handle the return of hot water tanks, indirect stacks, and on drips of supply mains and risers. It is made with 1¼-inch tappings.



Strainer

THE BARNES & JONES Strainers are designed for installation in the equalizing line between the boiler and the Condensator and also for use on drip connections or at any other point where there is likely to be a collection of scale, core sand or dirt. These strainers have removal screens to permit easy cleaning.

THE BARNES & JONES Condensator is designed for the fundamental purpose of insuring the return of the water of condensation to the boiler, from vapor or open return line systems, independent and regardless of the boiler pressure. This is accomplished without any change in the operating conditions of the system and without air-binding or admitting steam to the return side of the system.

The return of the water of condensation is one of the greatest difficulties encountered in vapor or open return line systems of heating, as any boiler pressure in excess of a few ounces (at which the BARNES & JONES Vapor Systems operate) would prevent the water of condensation from returning to the boiler and would cause it to collect in the return piping and not merely cause the system to become inoperative, but would also lower the water level in the boiler to a point where serious and expensive damage to the boiler would result.

The Condensator is installed near the boiler and midway between the boiler water line and the dry return main. The dry return main should be not less than 30 inches above the boiler water line. As pressure accumulates in the boiler, the water of condensation flows into the Condensator and rising to a predetermined level, carrying the float with it, which in turn opens a valve on the equalizing line, between the Condensator and the main steam line, thus equalizing the pressures in both the boiler and Condensator and allowing the water that has collected in the Condensator to return to the boiler by gravity.



No. 32

The equalizing line should be provided with a stop valve and a Strainer. A BARNES & JONES Strainer is furnished with each Condensator for this purpose as part of the Condensator.

The air vent from the Condensator is connected into the dry return line, the air being exhausted to the atmosphere through a BARNES & JONES Vent Trap. This Vent Trap is also furnished with the Condensator.

All working parts of the Condensator are made of the best grade bronze metal, and completely enclosed to prevent tampering. Condensators are made in various capacities to handle installations of all sizes.

Number	Size of Connection to Return Main	Capacity in Sq. Ft.	Net Shipping Weight Pounds
31	1½	700	80
32	1½	1,600	110
33	2	3,500	140
34	2	6,000	150
35	4	10,000	220
36	4	16,000	275
37	4	32,000	375

Send for Bulletin describing the complete Barnes & Jones Line

THE BEATON & CADWELL MFG. CO. NEW BRITAIN, CONN.

ESTABLISHED 1894

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Buffalo, N. Y., G. A. Cooper, 482 Massachusetts Ave.
Chicago, Ill., H. D. Stannard, Jr., 7435 Clyde Ave.
Detroit, Mich., C. M. Hargrave, 13623 Wark Ave.
Hartford, Conn., C. D. Crocker, 116 Grennan Rd. (West Hartford).
Kansas City, Mo., A. F. Wheeler, 2451 Askew Ave.
Los Angeles, Cal., Bear State Sales Co., 320 Commercial St.

BRANCH OFFICES AND REPRESENTATIVES

Montreal, Que., Can., G. Mason Price, 360 Recollet St.
New York, N. Y., Beaton & Cadwell Mfg. Co., 234 Water St.
Philadelphia, Pa., Taylor & Farr, Room 223, 1600 Arch St.
Richmond, Va., P. C. Abbott & Co., 704 Mutual Bldg.
San Francisco, Cal., Wm. P. Horn Co., 58 Federal St.
Vancouver, B. C., Can., Ames Bros., 83 Robson St.
Winnipeg, Man., Can., A. E. Hinds & Co., Galt Bldg.

Cadwell—No. 10 Non-Adjustable Thermostatic Air Valves and Cadwell—No. 20 Non-Adjustable Thermostatic Vacuum Air Valves



No. 10
Bottom Outlet
⅛ and ¼-Inch Sizes
List Price Each
$1.25



No. 10
Angle Type
List Price Each
$1.00



No. 20
Bottom Outlet
¼-Inch Size
List Price Each
$3.50



No. 20
Angle Type
List Price Each
$3.00

The Cadwell No. 10 Non-adjustable Air Valves will practically modernize any heating system on which they are used because they give the radiator a real chance to perform efficiently. The action is simple yet positive. The instant steam comes in contact with the thermostatic float, it closes the valve absolutely tight. When the radiator is cold the valve remains open long enough so that all air is exhausted by the incoming steam.

The No. 20 Valve will improve any one pipe system. In addition to a like operation of the No. 10, it has also an accurate vacuum disc which prevents air from entering the system.

Valves Guaranteed for Five Years

Valve clamps which prevent removal of valves from radiator, can be furnished at 50 cents each, list.

Automatic Air Valves

Carbon Post



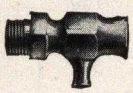
No. 3

No. 4—Low priced competitive valve.
No. 3—Water Seal is a high grade carbon Post valve. Water seal, lock shield valve is used for school work and public buildings.



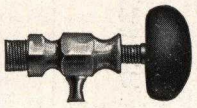
No. 4

Wood Wheel and Key Air Valves



No. 210

Wood Wheel type packed 1 dozen to a box.
Key type packed 2 dozen to a box.
Two Keys furnished with each dozen valves.



No. 211

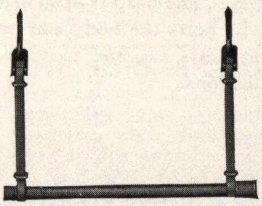
Galvanized Floor Sleeves



No. 1—Adjustable 14 to 24 inches. Cast iron flanges on top and bottom are made to attach to any steel floor and ceiling plate by means of screws through top of plate.
No. 2—Same as No. 1, but adjustable 10 to 16 inches.
No. 3—Same as No. 2, but with No. 12 Floor and Ceiling Plates attached.
No. 4—Same as No. 3, without cast iron flange. Top is flanged and bottom has No. 12 floor plate attached by two set screws.
No. 5—Not adjustable, single tube 9 inches long has No. 12 plate attached same as No. 4. Top edge can be flanged same as No. 4, if required.
No. 6—Not adjustable, single tube 9 inches long. Top edge flanged same as No. 4.

Price List

½"	¾"	1"	1¼"	1½"	2"	2½"	3"	3½"	4"	5"	6"
$.35	$.40	$.52	$0.55	$0.62	$.80	$1.00	1.25	$1.50	1.75	2.10	2.50



Universal Strap Hanger

Strong and instantly adjustable. No. 3 Adjustable to all sizes of pipe from ½ to 4 inches.
List Price, each, $0.10.

The Jumbo Pipe Hanger



A strong heavy, durable hanger. Made only in malleable iron.

Price List
Without Lag Screws

Size of Pipe....Inches	¾	1	1¼	1½	2	2½	3
List Price.....Each	$0.12	$0.13	$0.14	$0.16	$0.20	$0.25	$0.32
Size of Pipe....Inches	3½	4	4½	5	6	7	8
List Price.....Each	$0.42	$0.52	$0.57	$0.62	$0.90	$1.40	$1.70

With Lag Screws

Size of Pipe....Inches	¾	1	1¼	1½	2	2½	3
List Price.....Each	$0.17	$0.18	$0.20	$0.22	$0.28	$0.33	$0.40
Size of Pipe....Inches	3½	4	4½	5	6	7	8
List Price.....Each	$0.50	$0.60	$0.65	$0.70	$1.00	$1.50	$1.80

Cold Rolled Steel Hanger Rolls

Made to fit ⅜-inch iron pipe or ⅝-inch rod. Furnished in plain steel, galvanized extra.

Price List

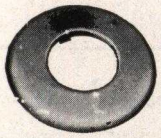
Size of Pipe.....Inches	1	1¼	1½
Price.....Each	$0.08	$0.09	$0.10
Center to Center....Inches	2½	3	3½



Hanger Rolls

For Our Line of Flush Valves, See Page 210

Perfection Floor and Ceiling Plates



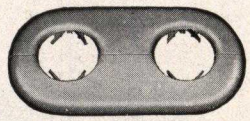
No. 12—Solid

No. 12—Solid Floor Plate. Sheet Steel or Brass. 1-inch flange. Sizes ¼ to 4 inches.

No. 13—Same as No. 12, but with set screw for ceiling use. Sizes ¼ to 4 inches.

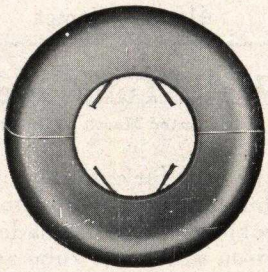
No. 15—Same as No. 12, but with ¾-inch flange. Sizes ½ to 2 inches.

No. 15A—Same as No. 12, but with ¾-inch flange and with set screw for ceiling use. Sizes ½ to 2 inches.



No. 17

No. 17—Double Hinged Floor and Ceiling Plate. Sheet Steel or Brass. Sizes ½ to 1¼ inches. Center to center ½, ¾, 1-inch, 2½ inches; 1¼-inch, 3½ inches.



Front View No. 10

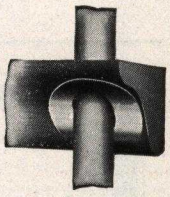
No. 10—The Original No. 10 Perfection Floor and Ceiling Plates of Sheet Steel or Brass. 1-inch flange. Sizes ¼ to 6 inches. **No. 10 Plate can be furnished in grained oak finish.**

No. 10A—Same as No. 10, but with ¾-inch flange. Sizes ½ to 2 inches.

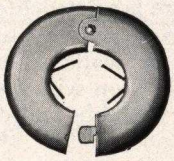
No. 10B—Same as No. 10, but with ¾-inch flange and set screw. Sizes ½ to 2 inches.

No. 11—Same as No. 10, but with set screw. 1-inch flange. Sizes ¼ to 6 inches.

No. 16—Special Ceiling Plate for Angle or Circle Cove. Made of Sheet Brass. Sizes ½ to 2½ inches.



No. 16

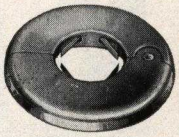


No. 30

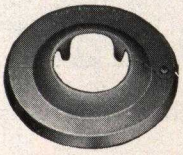
No. 30—Hinged Floor and Ceiling Plate. Sheet Steel. 1-inch flange. Sizes ⅜ to 4 inches.

No. 40—Hinged Floor and Ceiling Plate. Sheet Steel or Brass. 1-inch flange. Sizes ⅜ to 4 inches.

No. 40A—Same as No. 40, but with ¾-inch flange. Sizes ½ to 2 inches.



No. 40



No. 14

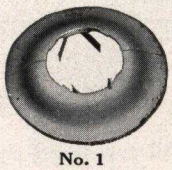
No. 14 — Hinged Floor and Ceiling Plate. Sheet Steel. 1-inch flange. Sizes ⅜ to 4 inches.

List Prices for Floor and Ceiling Plates Nos. 10, 10A, 10B, 11, 14, 16, 30, 40 and 40A.
(Double the following Lists for No. 17 Style of Plate)
For range of sizes each Plate may be furnished, see above descriptions.

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6
Black.....	$0.14	$0.15	$0.16	$0.17	$0.20	$0.22	$0.25	$0.30	$0.50	$0.65	$0.80	$1.00	$1.25	$1.50	$1.75
Nickel Plated...	.25	.26	.27	.28	.32	.35	.38	.45	.65	.80	1.00	1.25	1.50	1.75	2.00
Brass.....	.60	.60	.62	.65	.72	.80	.85	1.00	1.50	1.80	2.25	2.75	3.25	3.75	4.25

List Prices for Floor and Ceiling Plates Nos. 12, 13, 15 and 15A.
For range of sizes each Plate may be furnished, see above descriptions.

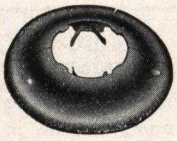
Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4
Black.....	$0.07	$0.07	$0.08	$0.09	$0.10	$0.11	$0.12	$0.13	$0.20	$0.25	$0.30	$0.40
Nickel Plated.....	.11	.11	.12	.13	.14	.15	.16	.17	.30	.35	.42	.50
Brass.....	.16	.16	.17	.18	.20	.23	.25	.30	.37	.45	.55	.65



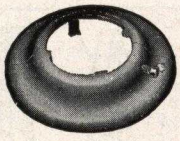
No. 1



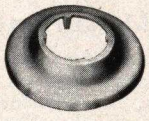
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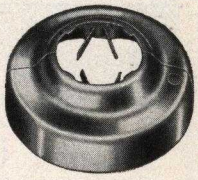
No. 3



No. 3A



No. 3S



No. 36

No. 1—Sectional Floor and Ceiling Plate. Cast Iron or Brass. 1-inch flange. Sizes, ⅛ to 12 inches.

No. 2—Same as No. 1, with set screw instead of springs.

No. 3—Hinged Floor and Ceiling Plate. Cast Iron or Brass. 1-inch flange. Sizes ⅜ to 4 inches.

No. 7—Same as No. 1, but with 1½-inch flange. Sizes ½ to 4 inches.

No. 9—Same as No. 1, but with 2-inch flange. Sizes ½ to 4 inches.

No. 3A—Hinged Floor and Ceiling Plate. Cast Iron or Brass. 1-inch flange. With set screw. Sizes ¼ to 4 inches.

No. 3S—Solid Floor and Ceiling Plate. Cast Iron or Brass With or without set screw. Sizes ⅛ to 7 inches.

No. 36—Hinged Floor and Ceiling Plate, Cast Iron or Brass. 1-inch flange, sizes from ½ to 2 inches, inclusive. Can be furnished with set screw instead of springs if required. Used where sleeves extend ½-inch above floor.



No. 6A—Solid Floor Plate. Cast Iron or Brass. Can be furnished with set screw for ceiling use. Sizes ¼ to 5 inches.

Used where sleeves extend 1½ inches above floor.

List Prices for Floor and Ceiling Plates Nos. 1, 2, 3, 3A, 3S, 6, 6A, 7, 9 and 36.
For range of sizes each Plate may be furnished, see description.

Size....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Black.....	$0.14	$0.14	$0.15	$0.16	$0.17	$0.20	$0.22	$0.25	$0.30	$0.50	$0.65
Nickel Plated.	.25	.25	.26	.27	.28	.32	.35	.38	.45	.65	.80
Cast Brass....	1.00	1.00	1.00	1.00	1.20	1.30	1.60	1.80	2.00	2.50	3.00

Size....Inches	3½	4	4½	5	5½	6	7	8	9	10	12
Black.....	$0.80	$1.00	$1.25	$1.50	$1.65	$1.75	$2.00	$2.25	$2.50	$2.75	$3.25
Nickel Plated.	1.00	1.25	1.50	1.75	1.85	2.00	2.25	2.50	2.75	3.00	3.50
Cast Brass....	4.00	5.00	6.00	7.00	8.00	9.00	10.00	12.00	14.00	16.00	18.00



No. 6—Sectional Floor and Ceiling Plate. Cast Iron or Brass. 1-inch flange. With set screw. 1¾ inches high. Sizes ½ to 4 inches.

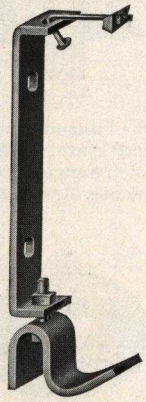
Used where sleeves extend ¾-inch above floor.

A. F. GLEOCKLE, JR. ROCHESTER, N. Y.

415 Bay Street

Adjustable Wrought Iron Wall, Tube and Column Radiator Brackets

(Patented March 23, 1920)



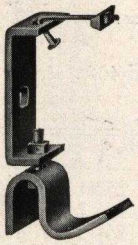
No. 1 Bracket

There is a Gleockle radiator bracket for every requirement in heating factories, office and public buildings, churches, stores and residences where radiation is hung on walls. Every Gleockle bracket is made of 1½ x ⅜-inch sturdy wrought iron with heavy cast iron saddle for tube and column radiators. They are serviceable and durable.

No. 1

No. 1 Gleockle wall radiator bracket supports 7 and 9 foot vertical wall radiators.

List price.....$2.50

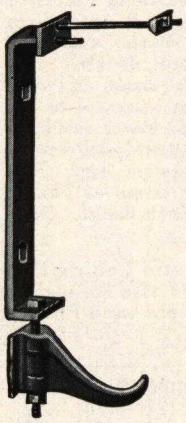


No. 2 Bracket

No. 2

No. 2 Gleockle wall radiator bracket supports 5 foot, 7 foot or 9 foot horizontal or 5 foot vertical wall radiators.

List price.....$2.50

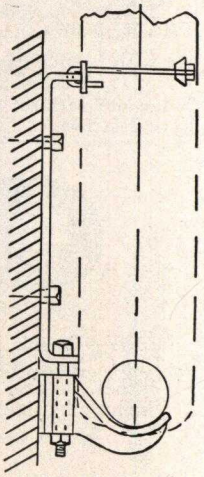


No. 9 Bracket

No. 9

No. 9 Gleockle radiator bracket. Made to support tube or column radiators.

List price.....$2.50



No. 9 Bracket

Gleockle brackets support the radiators 2 inches from wall and are adjustable, strong and flexible.

State make and type of radiation to be used when ordering.

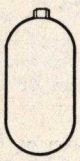
Write for Trade Discounts.

ARTHUR HARRIS & COMPANY CHICAGO, ILL.

210-218 North Curtis Street

Engineers—Coppersmiths—Bronze Founders—Float Manufacturers—Established 1884





Metal Floats

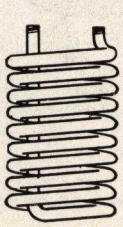
Made of copper, plain steel, stainless steel, aluminum, brass, monel and pure nickel. For open tank and all pressures.

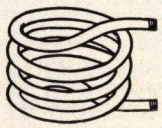
Seamless copper ball floats carried in stock, in diameters of 4", 5", 6", 7", 8", 10" and 12" and for open tank and pressures of 25, 50, 100 and 150 lbs. Special sizes and pressures made to order. Float catalog sent on request.

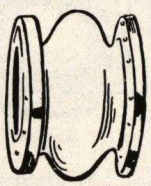


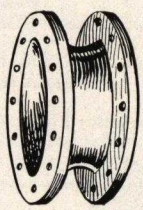
Pipe Coils

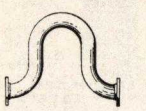
We have special equipment for making coils in all shapes and sizes from pipe or tubing—copper, brass, aluminum, monel, block tin and pure nickel. Standard or special fittings. Send sketch, blueprint or old coil.

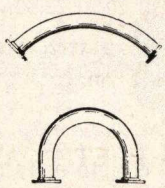












Copper Expansion Joints

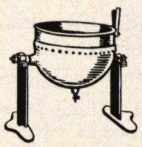
For low pressure and vacuum. Made in two styles—convex and concave. Sizes 4" to 60" diameter. Cast iron or steel flanges. Flanges drilled to American standard unless otherwise ordered.

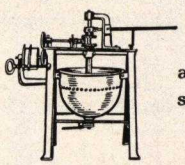
Pipe Bends

We make bends in every shape from all sizes of pipe and tubing. Standard or special connections. Copper, brass, aluminum, monel, tin and nickel. U-bends for storage water heaters.

Also special pipe work for the plumbing and heating trade and industrial installations. Perforated pipe, double pipe coolers, etc.







Steam Jacket Kettles

All types and sizes of steam jacket kettles; also kettles to be heated by open fire, gas or coils. All types of mixing kettles. Hydraulically pressed shells are even thickness and perfectly shaped. Made of copper, nickel and stainless steel. Folder sent on request.

Other Harris Products

Copper High Pressure Tanks and Coils for Water Cooling, copper, stainless steel and nickel tanks; rubber packed sanitary cocks; balance valves; spring valves and faucets; copper and stainless steel dippers, measures, funnels and pails; special copper and bronze pipe fittings; bronze bushings; centrifugal castings; flag pole and ornamental balls, etc. Consult our engineering department for information on special Work.

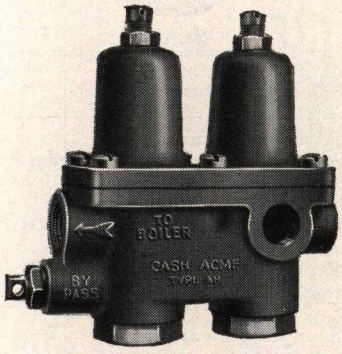
A. W. CASH VALVE MFG. CORPN. DECATUR, ILLINOIS

Office and Factory—600-616 North Water Street

Representatives

Brookline, Mass., P. J. McGoldrick, 214 Mason Terrace.
Chicago, Ill., Chas. H. Fiske, 431 S. Dearborn St.
Cleveland, Ohio, W. J. Snow, 420 United Bank Bldg.
London, Ont., Can., Empire Brass Mfg. Co., Ltd.
New York, N. Y., H. M. Fleming Co., Inc., 30 Church St.
Pittsburgh, Pa., John L. Sullivan, 1201 Union Trust Bldg.
Portland, Ore., W. M. Rice, Eighth and Everett Sts.

Cash-Acme Automatic Valve Specialties

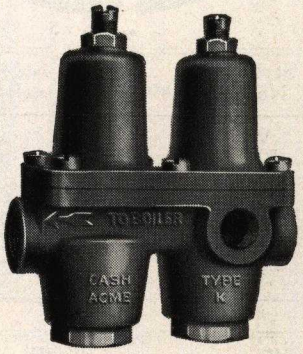


Type AH
Patented Jan. 8, 1929

Automatic Pressure Control For Hot Water Heating Systems

Simplify the hot water plant layout and increase its heating efficiency with CASH-ACME Automatic Pressure Control.

May be installed with or without an expansion tank on new or old jobs. Available in several types two of which are shown herewith.



Type K



Type FC

Relief Valves—Diaphragm Type

For dependable protection of Range Boilers, Hot Water Heating Systems, Air Tanks, etc., install CASH ACME Diaphragm Type Relief Valves.

Type FC

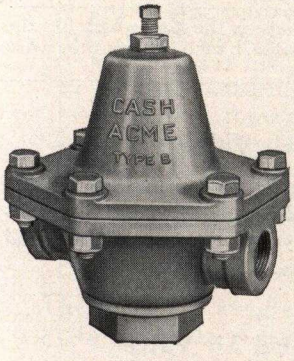
Inlet on either side, relief outlet at bottom. All bronze, for pressures up to 200 lbs. On hot or cold water, air (not suitable for steam), and some gases. Sizes, ½-inch and ¾-inch only.

Type FH

Male bottom inlet for easy installation, side outlet. All bronze, for relief pressures up to 125 lbs. on hot or cold water, air (not suitable for steam), and some gases. Sizes, ½-inch and ¾-inch only.



Type FH



Type B
Pressure Reducing Valves

Pressure Reducing Valves

Diaphragm Type, single seat for steam, water, air, oil, etc. Sizes, ¼-inch to 2-inch, inclusive, with self-contained strainer, renewable seats. Iron valves, cadmium plated, also available in bronze. Catalog and prices on request.

Strainers

CASH-ACME strainers are designed for installation on water, air, steam, oil or gas lines to protect the valve seats, etc., from dirt. Screen area is unusually large. Sizes up to 3-inch and pressures to 300 lbs. Iron strainers, cadmium plated; also available in bronze.



Type S
Strainer

SEND FOR COPY OF COMPLETE CATALOG

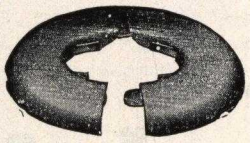
THE BEATON & CORBIN MFG. CO. SOUTHINGTON, CONN.

Representatives:

Chicago, Ill., J. H. Lehnen Co., 1510 So. Newberry Avenue.
Des Moines, Iowa, Shank-Haney Co., 402 Old Colony Bldg.
New York, N. Y., J. W. Gannon, 30 Church Street.
Philadelphia, Pa., Geo. E. Kitson, 5939 Haverford Ave.
San Francisco, Cal., T. A. Mitchell Co., 7 Front St.

B & C Floor and Ceiling Plates

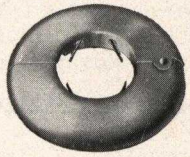
I. Stamped Plates—Nos. 9-20—2 doz. in a box—All others 1 doz.



No. 10



No. 9



No. 20



No. 16-17

Style No.	Material	Sizes Inches	List Price	Floor or Ceiling	Held By	Special Features
9	Steel	3/8–3	Regular	Combination	Prongs	Substantial and economical.
10	Steel or Brass	1/4–6	Regular	Combination	Springs	Hinge and catch concealed. Standard Plate for high class installations.
13	Steel or Brass	1/4–6	Regular	Ceiling	Set Screw	No. 10 Plate with set screw.
16	Steel	1/2–2	Special—Write Factory	Ceiling	Set Screw	Solid Plate—Narrow flange with set screw.
17	Steel	1/2–2	Special—Write Factory	Floor	.....	Solid Plate with narrow flange.
20	Steel	3/8–4	Regular	Combination	Springs	No. 10 shape with rivet hinge. Reasonably priced.

Regular List Price

Size.....Inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	9	10	12
Iron—Steel—Black.....	.14	.15	.16	.17	.20	.22	.25	.30	.50	.65	.80	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.25
N. P. Iron—Steel.....	.25	.26	.27	.28	.32	.35	.38	.45	.65	.80	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.50
Pol. or N. P. Stamped Brass....		.60	.62	.65	.72	.80	.85	1.00	1.50	1.80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pol. or N. P. Cast Brass....	1.00	1.00	1.00	1.20	1.30	1.60	1.80	2.00	2.50	3.00	4.00	5.00	6.00	7.00	9.00	10.00	12.00	14.00	16.00	18.00

II. Cast Plates—Packed 1 doz. in a box



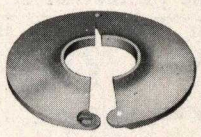
No. 3



No. 4-5



No. 6



No. 6W



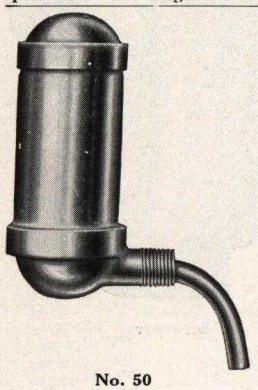
No. 7



No. 8

Style No.	Material	Sizes Inches	List Price	Floor or Ceiling	Held By	Special Features
3	Iron or Brass	1/4–12	Regular	Combination	Set Screw	Heavy—durable—complete size range.
4	Iron	1/2–4	Regular	Floor	.....	Solid Plate.
5	Iron or Brass	1/2–4	Regular	Ceiling	Set Screw	Solid Plate with set screw.
6	Iron or Brass	1/4–6	Regular	Floor	.....	Flat Plate—designed for radiator connections.
6W	Iron	1/2–2	Regular	Floor	.....	Extra Wide flange—1 1/2-inch.
7	Iron	3/8–3	Regular	Combination	Springs or Set Screw	Heavy Springs. Set screw can be substituted on special order.
8	Iron or Brass	3/8–3	Regular	Combination	Set Screw	Bell shape with 1 1/8-inch elevation to fit over 1-inch projections.

All Floor and Ceiling Plates are made to fit standard iron pipe sizes, and the size indicated for each Plate is the size which fits the corresponding iron pipe size. The standard width of flange of these Floor and Ceiling Plates approximates 1 inch unless otherwise specified—the larger sizes being somewhat wider.



No. 50

No. 50—Automatic Air Valve

Special Features

1. Unique well around exhaust port to collect and evaporate any seepage of water through vent hole.
2. Bullet-shaped nickel silver seating pin.
3. Four vent holes.
4. Extra large float.
5. Individually tested.
6. Guaranteed five years.
7. Attractively priced.

Packed 2 in a box. 1 dozen in a carton.



No. 210

No. 210—Key Air Valve

No. 210 is a sturdy dependable compression Air Valve, packed 2 dozen Valves and 4 keys to the box. Extra keys in any quantity furnished at a reasonable price.

No. 211—Wood Wheel Air Valve

No. 211—Similar to No. 210 but operated by a wood handle. Packed 1 dozen in a box.

Sold exclusively through wholesale trade

D. & T. MANUFACTURING CO. ST. LOUIS, MO.

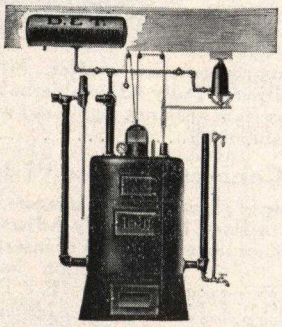
General Offices and Factory—3001-3009 La Salle Street

Manufacturers of

The Complete Line of

Automatic Hot Water Heating Specialties

D. & T. Original Tank-In-Basement System

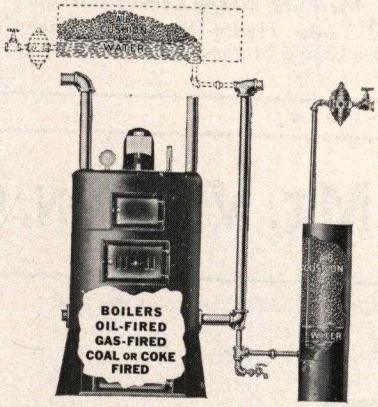


The D. & T. original Tank-in-Basement Self-Regulated Hot Water Heating System.

Economical, efficient and durable.

Self-Filling Air Cushioned Tank Equipment

Especially Built for Oil Fired and Gas Fired Boiler



The Ideal Combination.

Includes all advantages of an air-sealed, air-cushioned, closed Tank, Hot Water Heating installation.

The flexible, healthful and always comfortable heat with varying change in weather.

An automatic control — keeping the System constantly under pressure.

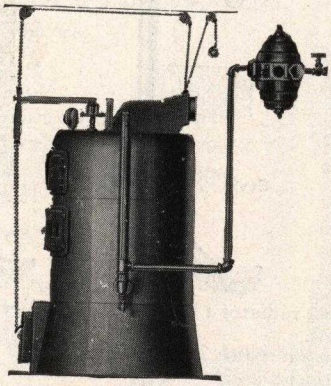
No worry about keeping the plant filled with water.

The special "Self-Filling" feature—with no attention of the owner—automatically adds water—just as it is needed—to the System.

Especially built for Oil-Fired and Gas-Fired Hot Water Boilers. Keeps the water in the System.

Equally adaptable for the solid fuel Boiler.

D. & T. All-In-One System

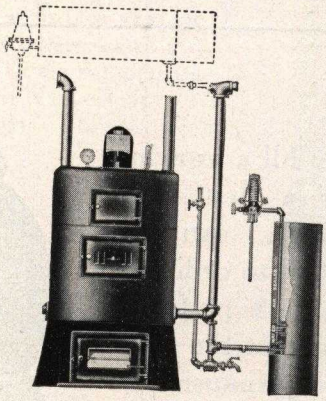


A reliable, self-contained Closed System.

Operates entirely automatic either without or with Expansion Tank.

The Emergency Relief Device is positive protection against excess pressure.

Simplex Air-Sealed Tank-In-Basement Equipment



Lowest cost, dependable, Air-Sealed Hot Water Heating System.

Tank is standardized and may be set on floor or hung on Ceiling.

Combined Catalog and Text Book

The D. & T. "Progress in Hot Water Heating" Catalog in addition to listing, and describing and illustrating our complete line of Automatic Systems and Specialties for Hot Water Heating also

Includes 50 Pages of Useful Data

design and standard practice detail, as substantiated and enthusiastically endorsed also by A. S. H. & V. E.

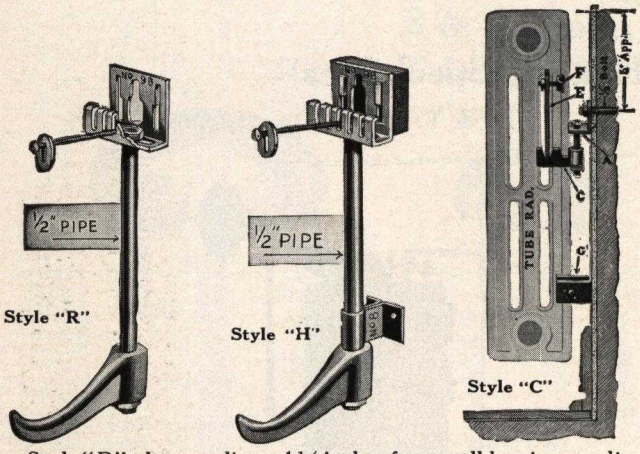
Write Today for Your Copy

HEALY-RUFF COMPANY ST. PAUL, MINNESOTA

General Offices and Warehouse — 798 Hampden Avenue

E-Z

E-Z Radiator Hangers



Style "R" places radiator 1½ inches from wall but is not adjustable for baseboard.

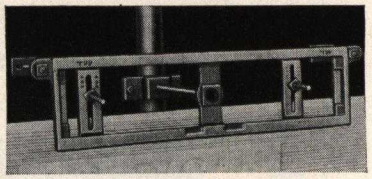
Style "H" places radiator 2½ inches from wall and provides for baseboard adjustment.

Style "C" can be furnished for either 1½ inches or 2½ inches from wall.

Style	Each	Style	Each
"R" Wall or Tube	$0.80	"R" Double Wall	$1.00
"H" Wall or Tube	1.10	"H" Double Wall	1.30
"C" Wall or Tube	.80		

These hangers suitable to all makes and styles of radiation: horizontal and vertical alignment; but one anchor bolt; fit any type of wall construction.

E-Z Lavatory Hangers

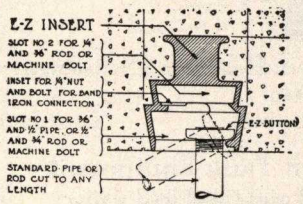


Easy and economical to install. Forms a rigid, firm support, with or without clamping to vent pipe. Cannot slip or come loose from wall. No lavatory pedestal, legs or other support necessary. Installed in wall without extra frame. Can be built into wall during construction or after. Fits all size lavatories and meets all conditions. Fully adjustable both horizontally and vertically. Exact position need not be figured when setting.

Price F.O.B. St. Paul, each $4.00

E-Z Concrete Inserts "7 In 1"

One size adaptable to all sizes of pipe hangers, whether supported by Pipe, Bolt, Rod or Band Iron. **Fully Adjustable**—allows play for expansion and inaccurate alignment of inserts. Ball and Socket connection between insert and hanger. E-Z Button turns in the insert. No couplings or turn buckles needed. In stock: E-Z Support Buttons for ¼, ⅜ and ½-inch Pipe and ½, ⅝ and ¾-inch Rod. Prices F.O.B. St. Paul, Minn.



E-Z Concrete Inserts, each $0.10
E-Z Support Buttons, each ..... .03

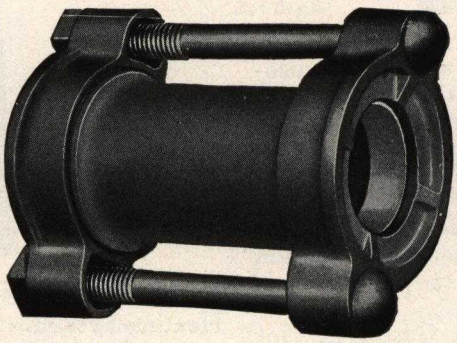
Mercury Water Level Controls

For Elevated Tanks, Hydro-Pneumatic Tanks, House Tanks, Make-Up Tanks, Liquid Storage Tanks, Sumps and Underground Tanks.

HOPE ENGINEERING COMPANY MT. VERNON, OHIO

The "Cy" Coupler

Is made to fill a growing demand for a first class Coupler which can be quickly applied to ordinary pipe and make a perfectly tight joint, and at the same time allow for expansion or contraction of the line.



For Repair Work

This coupler is a time and money saver and can be quickly applied without threading or cutting the pipe to exact length.

In Many Places

A coupler of this character is now required to connect service lines and meters and its use is fast becoming universal.

The center ring is given sufficient clearance to allow of extreme flexibility.

The Coupler

Is made of malleable iron of ample weight to withstand the roughest use and is adapted for either high or low pressure lines.

Sizes and List Prices

Size, Inches	½	¾	1	1¼	1½	2
Price	$0.55	$0.65	$0.80	$0.90	$1.00	$1.30

THE DOLE VALVE COMPANY — CHICAGO, ILL.

Main Office and Factory—1913-1933 Carroll Avenue

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Boston, Mass.
Buffalo, N. Y.
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Cincinnati, Ohio.
Cleveland, Ohio.
Dallas, Texas.
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Detroit, Mich.
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Dole

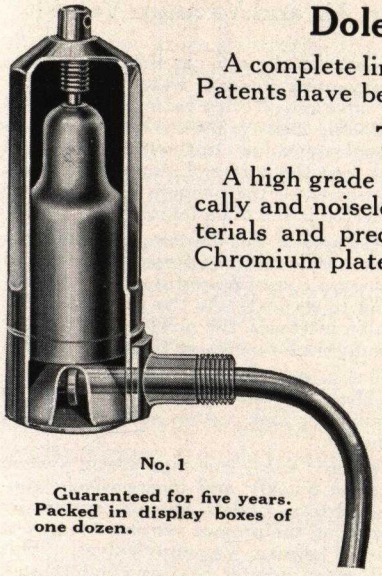
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Dole Air Valves and Brass Products

A complete line of thermostatic, carbon post and hot water key air valves. Patents have been applied for on all thermostatic type valves.



No. 1

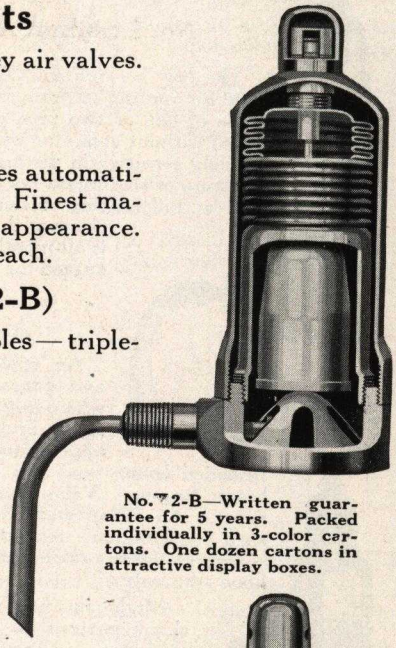
Guaranteed for five years. Packed in display boxes of one dozen.

The Dole Syphon Air Valve (No. 1)

A high grade air valve of the thermostatic type which operates automatically and noiselessly. Foolproof construction, non-adjustable. Finest materials and precision workmanship throughout. Distinctive appearance. Chromium plated. Guaranteed for 5 years. List price $1.50 each.

The Dole Vacuum Valve (No. 2-B)

Embodies a new application of principles—triple-action construction in a vacuum primer, a bellows and a thermostatic float. "Holds a vacuum." New body design, beautifully chromium plated. List price $4.00 each.



No. 2-B—Written guarantee for 5 years. Packed individually in 3-color cartons. One dozen cartons in attractive display boxes.

The Dole Straight Shank Vacuum Valve (No. 6-B)

Same scientific principles as No. 2-B, identical body design and finish, but made with combination ¾-inch male thread and ⅜-inch female thread for venting mains. List price, chromium plated $5.00 each.



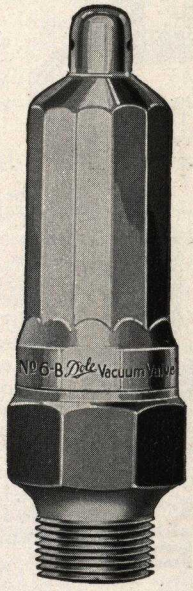
No. 3-A

The Dole Straight Shank Quick Vent Air Valve (Nos. 3-A, 3-B and 3-C)

For quick venting the ends of steam mains; especially useful for venting hot water generators and low-pressure feed water heaters where a straight shank valve is required. Entirely automatic in operation—same principles and construction throughout as Dole Syphon Air Valve (No. 1). Chromium plated. 5-year guarantee. Packed in dozens. Three-dozen lots packed in special display box.

3-A with ⅛-inch pipe thread—List price $2.00 each.
3-B with ¼-inch pipe thread—List price $2.00 each.
3-C with ¾-inch pipe thread—List price $2.50 each.

(3-B not illustrated but, except for pipe connection, is identical with 3-A. All recommended for use with No. 1 Syphon Air Valve installations).



No. 6-B—Written guarantee for 5 years. Packed in attractive individual cartons.



No. 3-C

The Dole Hot Water Key Air Valve (No. 5)

These valves are packed two dozen in a box. Four keys included in each box. Special prices in quantity lots packed in bulk without keys. Quotations on request.

Dole "1933" Thermostatic Air Valve

A reliable air valve of the thermostatic type (not illustrated) made in quantity production and sold principally for large operations. Standard nickel plated finish unless otherwise ordered.

We also make a complete line of carbon post air valves of good quality at attractive prices.



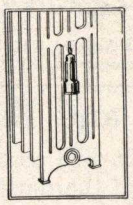
Dole Hot Water Key Air Valves

HOFFMAN SPECIALTY COMPANY, INC. WATERBURY, CONN.

General Sales Department—Chrysler Bldg., New York, N. Y.

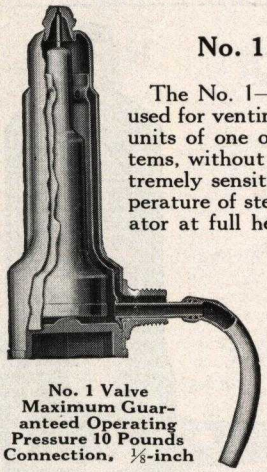
Branches and Representatives in Principal Cities

Hoffman Venting Valves for One or Two-Pipe Gravity Steam Systems



No. 1 Siphon Air Valve

The No. 1—Hoffman Siphon Air Valve is used for venting air from radiators or heating units of one or two pipe gravity steam systems, without steam or water loss. The valve is extremely sensitive in distinguishing between the temperature of steam and heated air and keeps the radiator at full heating efficiency. The port opens and closes with "snap" action. The valve is all-metal, non-adjustable and guaranteed for a period of five years.



No. 1 Valve Maximum Guaranteed Operating Pressure 10 Pounds Connection, ⅛-inch

Airport Valves

An efficient venting valve made and guaranteed by Hoffman for jobs where initial cost is a factor. It is small and attractive in appearance. Base and threaded connection is a one piece hot brass forging. Valve pin is of nickel silver. An adaptation of the double shell construction — exclusively Hoffman —assures perfect operation should water flood the valve.

Made in Angle, or Straight shank pattern for fin type units. Radiator connection ⅛-inch. Maximum guaranteed operating pressure 10 pounds.



Section Through Airport Valve



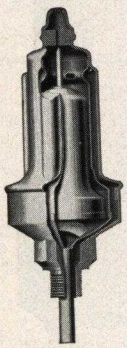
Straight Shank Pattern

No. 4 Valve

The No. 4 Hoffman Quick Vent Valve is used for venting steam mains of one or two pipe systems which end 18 inches or more above the water line. The vent port is ⅛-inch, permitting free venting, but it closes tightly against steam loss. As it does not contain a float, the valve should not be used where water is a factor.

The No. 4 may also be used for venting tops of risers, unit heaters, indirect radiators, blast coils, dryers, drums and low pressure feed water heaters.

Standard pipe connections, ¾-inch, furnished with ¼-inch when so ordered. Maximum guaranteed operating pressure 10 pounds.



No. 5 Quick Vent Float Valve

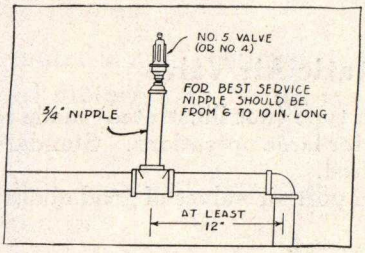


No. 4 Quick Vent Valve

No. 5 Valve

The No. 5 Hoffman Quick Vent Float Air Valve is intended for service similar to that of the No. 4, but, in addition, may be used for mains where boiler water level is less than 18 inches below main or for other conditions where water is encountered. This valve is constructed with the double shell and operates similar to the No. 1 Valve.

Connection, ⅜ inches. Maximum guaranteed operating pressure for valves with 1/16-inch port, 10 pounds; for 3/16-inch port, 3 pounds. When ordering, size of port (depending on maximum operating pressure) should be specified.



Hoffman Venting Valves for One-Pipe Gravity Vacuum Systems

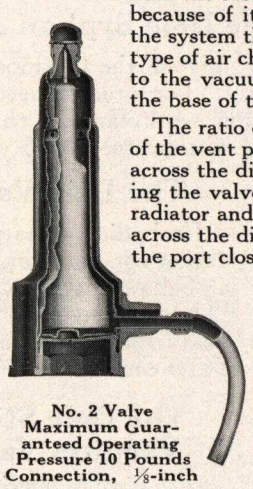
No. 2 Siphon Air and Vacuum Valve

The No. 2 Valve operates the same as the No. 1 Valve in venting air and preventing steam or water loss. It differs from the No. 1 Valve and all other vacuum type valves because of its double lock against the return of air to the system through the valve. In the No. 2 the usual type of air check over the port is of minor importance to the vacuum function—the vacuum diaphragm in the base of the valve is the main factor.

The ratio of the area of this diaphragm to the area of the vent port multiplied by the pressure differential across the diaphragm causes powerful action in holding the valve pin to its seat. As the vacuum in the radiator and valve increases, the pressure differential across the diaphragm also increases the force holding the port closed.

The Hoffman No. 2 Valve with its double air lock assures satisfaction and long life.

Almost every one-pipe steam system can be quickly and inexpensively converted to a modern vacuum system by replacing the present venting equipment with Hoffman Vacuum Valves. This will mean greater heating comfort and, at the same time, less consumption of coal, gas or oil.

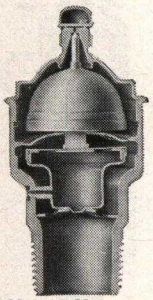


No. 2 Valve Maximum Guaranteed Operating Pressure 10 Pounds Connection, ⅛-inch

No. 16 Valve

The No. 16 Hoffman Vacuum Vent Valve is designed to vent steam mains of one-pipe vacuum systems which end 18 inches or more above the boiler water line. Air is freely vented without steam or water loss and return of air is prevented by the "double air lock"—vacuum diaphragm and air check. Also adapted for any quick vent service where return of air is not desired and where water in small amounts is encountered.

Vent port, 1/16-inch; connection, ¾-inch; maximum guaranteed operating pressure, 10 pounds.



No. 16 Vacuum Vent Valve



No. 6 Air and Vacuum Valve

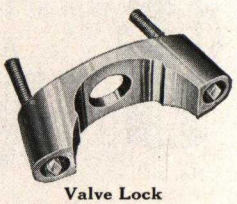
No. 6 Valve

The No. 6 Hoffman Quick Vent Float Air and Vacuum Valve. For all quick venting services (without steam or water loss) where return of air through the valve is to be prevented. It is recommended for venting mains of one-pipe vacuum systems which end less than 18 inches above boiler water line.

The No. 6 contains a large float and separate air channels for efficient operation under a surging condition. In operating principle, it is an enlarged No. 2 Valve.

Hoffman Valve Lock

A simple device for preventing unauthorized removal of No. 1 or No. 2 Valves. Installed with ease, no tapping in the radiator required. A good investment, especially for apartment buildings, hotels, etc., as protection against loss of vacuum should valves be removed, as well as loss of valves.

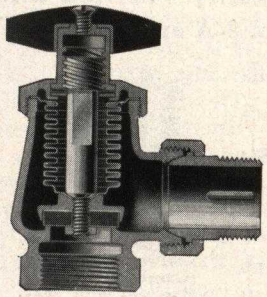


Valve Lock

Hoffman No. 37 Bellows Packless Radiator Valve

For One or Two Pipe Systems

The durable, leak-proof bellows used in the No. 37 Hoffman Packless Radiator Valve eliminates the annoyance of escaping steam or water. It also prevents loss in efficiency resulting from in-leakage of air into vacuum pump or one pipe vacuum systems.



No. 37 Valve

Hydraulically formed and tested in the making for imperfections, this bellows is generously proportioned to obtain high lift from the seat without undue strain. Because of this long valve travel and large clearance around the valve seat, counter flow of steam and condensate in one pipe systems occurs without interference.

Torsional strain—a common cause of bellows failure—is impossible in the No. 37 Hoffman Valve. The flat-sided valve stem moves up and down through a slotted washer rigidly held in the bonnet, positively insuring against any twisting action on the bellows.

One easy turn of the handle fully opens or closes the valve. "Creeping" of the valve from its seat, due to steam pressure, is eliminated by a "friction brake," overcoming a trouble frequently encountered in valves of the quick-opening type. Since all working parts are sealed by the bellows from steam, water and foreign matter, long years of service will not alter its smooth operation.

Specifications—No. 37 Valve

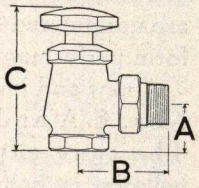
Sizes—½, ¾, 1, 1¼ and 1½-inch.
Bellows—1¼-inch diameter, 10 convolutions for ½, ¾ and 1-inch valves. 1½-inch diameter, 14 convolutions for 1¼ and 1½-inch valves.
Valve Disc—Genuine Jenkins Bros.
Handle—Solid black Bakelite—hexagonal. Lever handle on order at no extra charge.
Pattern—Angle only.

Attachments—Bevel gear (90°), Offset extended stem and straight extended stem (at extra charge).

Weights—½ and ¾-inch valves, 1 lb. 12 oz.; 1-inch valve, 2 lb. 10 oz.; 1¼-inch valve, 3 lb. 10 oz.; 1½-inch valve, 4 lb.

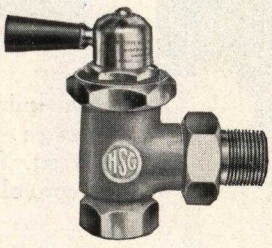
Dimensions

Valve Size	½"	¾"	1"	1¼"	1½"
A	1 3/16"	1 3/8"	1½"	1 7/8"	2"
B	2¾"	2 13/16"	2 7/8"	3½"	3¾"
C	4½"	4½"	4½"	5¾"	5¾"



Hoffman No. 7 Adjustable Modulating Radiator Valve

The No. 7 Hoffman Modulating Valve with its dual adjustment meets every requirement for balancing steam distribution to all radiators in a vapor or vacuum system and for steam utilization at the radiators.



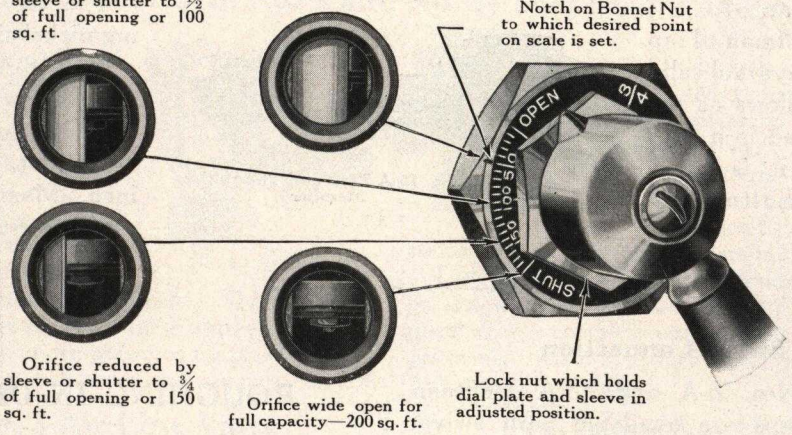
The primary adjustment, illustrated below, is made at the time of installation and assures each radiator its full quota of steam, regardless of distance from the boiler and variation in frictional losses in the piping.

To adjust the orifice, loosen the lock nut, rotate dial plate until the desired point on scale is opposite notch on bonnet nut, and then tighten lock nut. The simplicity and wide range of accurate orifice adjustment are noteworthy features.

The secondary adjustment allows the user to control the heat output of the radiator to suit individual needs. Operation of the valve handle raises or lowers the valve disc which varies the size of the orifice, as made by the primary adjustment. The position of the valve disc is visibly indicated and the fractional graduations on the dial are direct indications of the heat output of the radiator.

The service performed by the Hoffman No. 7 Valve is indispensable for maximum heating comfort, economy and control.

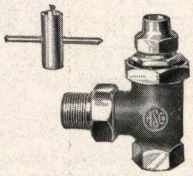
Furnished in one size only, ¾-in. for radiators up to 200 sq. ft. The angle pattern with lever handle is standard. Also furnished with swivel connection for right, left, straightway or any intermediate angle and with the special attachments shown below.



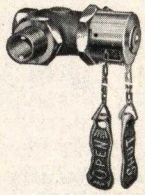
Special Attachments for Hoffman Radiator Valves



Wood Wheel



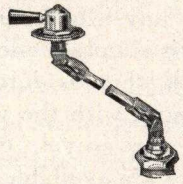
Lock Shield



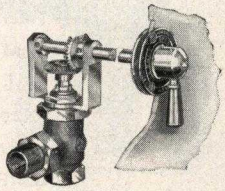
Chain Pull



Straight Extension Stem



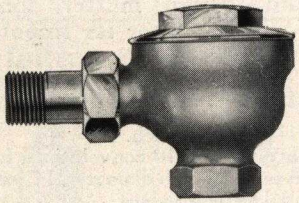
Offset Extension Stem



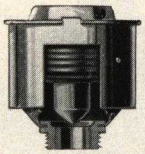
Bevel Gear

Hoffman Bellows Type Thermostatic Traps With Hydraulically Formed and Tested Bellows

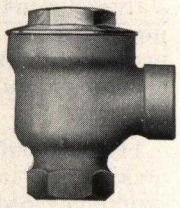
No. 8-A and No. 9-A Traps



No. 8-A Trap



Type of Thermal Member in No. 8-A and No. 9-A Traps Combines bellows, valve pin and seat, into a single unit.



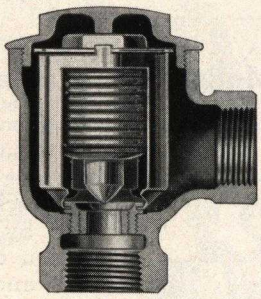
No. 9-A Trap

The new Hoffman Traps are actuated by a bellows thermal member made from drawn seamless tubing and formed by a new hydraulic method under an internal pressure of more than 500 lbs. per sq. in.—a "tested-in-the-making" process. With this process, the folds of the bellows maintain a uniform metal thickness and crystalline structure and are unimpaired by tool marks—factors essential to uniform performance and long life.

A new and improved construction is featured in the Nos. 8-A and 9-A Traps. The cage supporting the bellows is combined into a single unit with the valve seat. This unit is screwed into the body and the joint tightly sealed with a soft copper gasket which also facilitates removal of the unit if ever necessary.

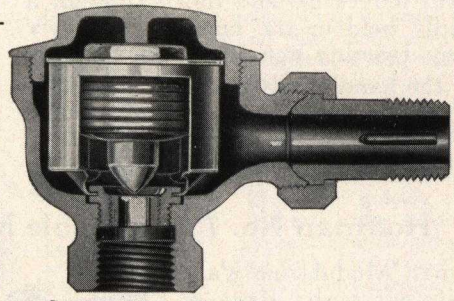
An important factor in trap operation is the durability of the seating surfaces. The valve pins and seats of the Nos. 8-A and 9-A Traps are of a special nickel-silver alloy having exceptional wear resisting qualities.

These traps are intended for vapor or vacuum heating as well as for pressures up to 25 lbs., for regular traps, and up to 50 lbs. for special traps (furnished at same price).



Sectional View, No. 9-A Trap

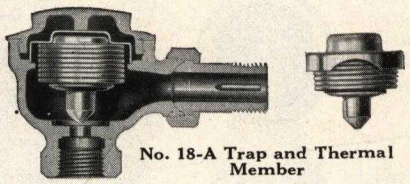
No. 8-A, made with ½-inch connections, angle or swivel patterns. Nominal capacity for pressures under 1 lb., 300 sq. ft. of radiation. Bellows 1½-inch diameter, 8 convolutions. Port ⅜-inch. No. 9-A, ¾-inch connections, without union, angle pattern only. Furnished with union connection on order at slight additional charge. Nominal capacity for pressures under 1 lb., 700 sq. ft. of radiation. Bellows 1½-inch diameter, 12 convolutions. Port 7/16-inch.



Sectional View, No. 8-A Trap

No. 18-A Trap

The No. 18-A Hoffman Trap contains the same hydraulically formed and tested bellows as the No. 8-A. It is mounted in a cage so constructed that it is interchangeable without adjustment in all No. 18-A bodies.

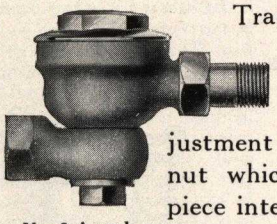


No. 18-A Trap and Thermal Member

The valve pin is of wear resisting nickel-silver alloy.

No. 18-A, ½-inch connections, angle or swivel patterns. Nominal capacity for pressures under 1 lb., 300 sq. ft. of radiation. Port ⅜-inch. Maximum guaranteed operating pressure, 25 lbs.

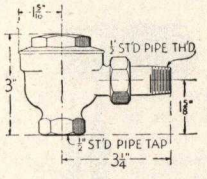
Reversible Swivel Connection



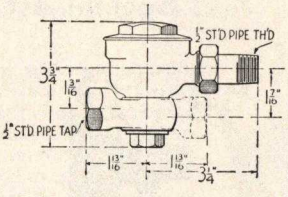
No. 8-A and No. 18-A Swivel Connection

Nos. 8-A and 18-A Hoffman Traps are available with swivel connection for straight way, right or left hand pattern or any intermediate angle. Adjustment is simply made by means of a nut which threads into an extension piece integral with the valve body. By reversing the swivel, two roughing-in dimensions are available.

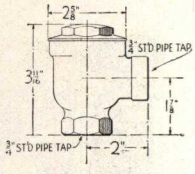
ROUGHING-IN DIMENSIONS



No. 8-A and No. 18-A Angle Pattern



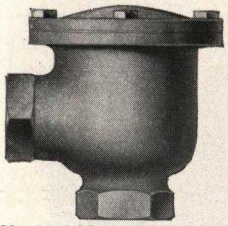
No. 8-A and No. 18-A Swivel Connection



No. 9-A, Angle Only

Hoffman No. 10-A Heavy Duty Trap

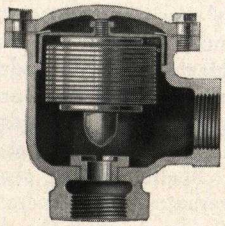
With Waterhammer Proof Bellows



No. 10-A Heavy Duty Trap

This trap contains a "solid fill" bellows which enables it to withstand, without appreciable harm, the shock of waterhammer, frequently encountered where large quantities of condensate are handled. This feature, together with its compactness and light weight, makes the No. 10-A adaptable for draining unit heaters, steam mains or other equipment of large condensing power.

The bellows, 2 7/16-inch in diameter, 13 convolutions, is supported in a cage which is interchangeable without adjustment in all 10-A bodies. Valve pin and renewable seat are of a wear resisting nickel-silver alloy.



Section Through No. 10-A Trap

The No. 10-A has iron body, 1-inch connection without union. Nominal capacity for pressures under 1 lb., 2800 sq. ft. of radiation. Angle pattern only. Port 9/16-inch diameter.

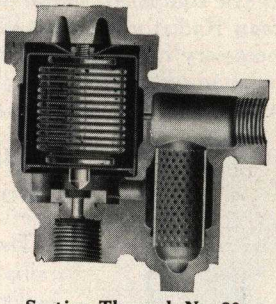
***Capacities in Pounds of Condensate per Hour—No. 10-A**

Pressure Difference, Lbs. per Sq. In.	Temperature Drop—Degrees F.		
	3°	4°	5°
1	950	1410	1950
2	1140	1600	2140
3	1360	1790	2350
4	1580	1990	2590
5	1800	2210	2850
6	2030	2480	3130
7	2300	2790	3460
8	2600	3100	3810
9	2910	3480	4200
10	3380	3860	4610

*To obtain capacities in square feet of direct radiation, multiply above capacities by 4.

Hoffman High Pressure Traps

Zero to 100 Pounds pressure



Section Through No. 20 and No. 21 Traps

No. 20 and 21 Hoffman Thermostatic Steam Traps—pressure range 0 to 100 pounds without adjustment.

The trap bodies are of rugged, all-bronze construction. The hydraulically formed bellows is so constructed as to be waterhammer proof, an important factor in reducing maintenance expense. The valve pin and renewable seat are of wear resisting nickel-silver alloy. A strainer is built into the trap body and is easily removed for cleaning.

The cage, supporting the bellows, has a stop which permits removal of the thermal member while steam-hot without damage to the bellows. Thermal members are interchangeable in bodies of the same size without adjustment.

The valve port is normally wide open for the free discharge of air and initial condensation. No hand operated bypass for venting the unit is required.

The discharge capacity is dependent on differences between the temperature of the condensate delivered to the trap and the steam temperature—the greater the difference, the larger the capacity as shown in the capacity table. To insure maximum capacity and long life of valve pin and seat, the cooling leg should be made as long as possible.

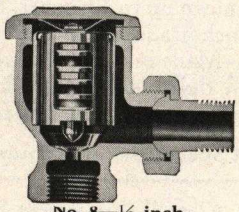
No. 20 Trap connections 1/2-inch; port diameter 3–16-inch. No. 21 Trap connections 3/4-inch; port diameter 1/4-inch.

Continuous Discharge Capacity Lbs. per hour

Pressure, Lbs. per Sq. In.	No. 20 Temperature Drop—Degrees Fahrenheit				No. 21 Temperature Drop—Degrees Fahrenheit			
	20°	25°	30°	35°	20°	25°	30°	35°
10	275	450	600	725	375	610	800	950
20	425	615	775	900	575	825	1050	1200
30	550	750	940	1075	725	985	1250	1410
40	640	860	1075	1225	835	1150	1450	1640
50	715	960	1210	1380	925	1285	1620	1860
60	775	1050	1340	1540	1010	1410	1775	2075
70	820	1130	1440	1675	1085	1525	1900	2250
80	860	1200	1510	1760	1150	1600	2010	2400
90	900	1250	1560	1830	1190	1660	2090	2490
100	925	1260	1590	1860	1225	1725	2140	2550

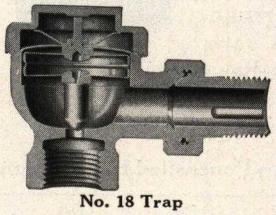
Hoffman No. 8, No. 9 and No. 18 Diaphragm Traps

The No. 8 and No. 9 Hoffman Traps contain the diaphragm type of thermal member consisting of six diaphragms joined into three chambers and interconnected through the center. The collective movement of the six diaphragms is imparted to the valve pin giving long valve travel. The thermal member is supported in a cage and the complete unit is interchangeable in bodies of the same size without adjustment. The characteristics of the volatile fluid are such that these traps operate with consistently high efficiency under pressures up to 50 pounds.



No. 8—1/2-inch
No. 9—3/4-inch

The No. 8, 1/2-inch Trap, has a nominal capacity of 200 sq. ft. of radiation; port diameter, 1/4-inch. Angle pattern standard. Maximum guaranteed operating pressure, 50 pounds.



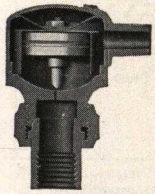
No. 18 Trap

No. 9, 3/4-inch connections, angle pattern, nominal capacity 600 sq. ft. of radiation; standard port diameter, 3/8-inch. For pressures above 15 pounds, 3–16-inch port is furnished.

The No. 18 Trap is used for draining radiators of 100 sq. ft. or less and for pressures below 15 pounds. The thermal member is a complete unit and interchangeable without adjustment. Made in 1/2-inch size only. Port diameter, 1/4-inch. Angle pattern standard.

Hoffman No. 3 Air Line Valve

The No. 3 Hoffman Air Line Valve is a compact all-metal valve for air line or Paul Systems, where an exhaust line is carried from the valve back to a central point where in many cases air is drawn out of the system by a vacuum pump. Freely vents all air, closing tight against steam loss.

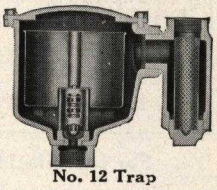


No. 3 Valve

Radiator connection, 1/8-inch; air line connection, 1/4-inch. Maximum guaranteed operating pressure, 10 pounds.

Hoffman No. 12 Blast Trap

For draining Unit Heaters, Vento coils, etc., where large capacity is required. A thermostatic member combined with the float freely passes all air, preventing air binding. Body is cast iron with removable seat. Pipe connections 1-inch inlet and outlet.

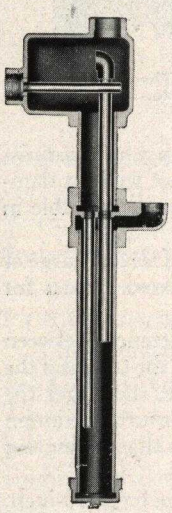


No. 12 Trap

Hoffman "Controlled Heat" Basement Specialties

The equipment shown below, in conjunction with the Hoffman Radiator Valves and Traps includes all the specialties necessary for a complete Hoffman "Controlled Heat" vapor-vacuum system of heating. It is extremely flexible, economical and practically automatic, and suitable for any type of building where condensate will return to the boiler by gravity and the necessary water line difference is obtainable. For buildings requiring up to 3500 sq. ft. of radiation, 24 inches between lowest point in dry return and boiler water line are required—and 30 inches where 3500 to 15,000 sq. ft. of radiation are installed.

Hoffman Differential Loop and No. 15 Air Valve



Differential Loop

The Hoffman Differential Loop maintains the flow of condensate back to the boiler in event of excessive pressure. The simplicity of the Loop and the fact that it contains no moving parts emphasizes its suitability as a boiler protective device.

In operation a water column seals a connection between the steam and return mains until such time as a predetermined pressure is generated, when the connection is unsealed and a small quantity of steam is blown into the return main. This action closes the port of the main vent and compresses the air in the return sufficiently to prevent water from rising beyond the level in the return established by the predetermined pressure. As soon as a sufficient quantity of steam is delivered to the return to accomplish the desired results, the blow-over connection is resealed and remains so until there is need for an additional supply of steam.

When the Loop functions it maintains a fixed differential pressure between the steam and return mains. This permits circulation of steam throughout the system even though the main vent port is closed.



No. 15 Valve

The No. 15 Air Valve is used in conjunction with the Loop and controls the flow of air from the system and prevents its return.

The Differential Loop and No. 15 Valve are sold only as part of the complete Basement Specialties which are grouped for installations of various sizes as listed below.

Hoffman Damper Regulator



No. 13 Damper Regulator

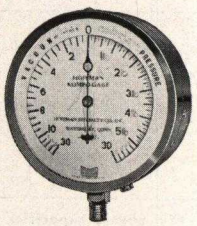
A very sensitive Damper Regulator for controlling the drafts of vapor-vacuum systems. Operates on the low boiler pressures (measured in ounces) encountered with "Controlled Heat." Contains a large area rubber diaphragm protected by a water seal that prevents vulcanization. A compensating plate above the diaphragm controls weight of water seal, causing opening and closing with the same degree of sensitivity.

Slight pressure changes caused by opening or closing the radiator valves operate the regulator, accelerating or retarding the fire to meet the change in demand for steam. Connection —1-inch.

Hoffman Kompo Gage

The Hoffman Kompo Gage accurately indicates the pressure of the vapor being generated in the boiler or the degree of vacuum under which the plant is operating.

Equipped with externally operated setscrew which resets the hand. Often during shipment the hand is jarred from its normal position at zero. By turning the setscrew, without dismantling the gage or removing the glass, the hand may be reset to zero with perfect assurance that it will register as accurately as when it left the factory.



Kompo Gage

Pressure is measured up to 30 pounds, the first 5 pounds being shown in ounce graduations, with a retard from 5 to 30 pounds. Vacuum is shown up to 30 inches, the first 10 inches being indicated in ½-inch graduations, with a retard from 10 to 30 inches.

Made in one style only—pressed steel case and ring, finished in dull black, white dial—5 inches in diameter, pressure and vacuum readings in black. Pipe connection is ¼-inch.

For convenience in figuring, Hoffman Controlled Heat Basement Specialties are grouped in four standard classes as follows:

Class "O" Basement Specialties for installations up to 2000 square feet Direct Radiation, consisting of:

2 No. 18 Return Line Valves for venting Steam Mains into Dry Returns.

1 No. 0 Hoffman Differential Loop, including one No. 15 Vacuum Valve.

1 No. 14-A Hoffman Kompo Gage.

Class "C" Basement Specialties for installations of 3501 to 7500 square feet Direct Radiation, consisting of:

4 No. 18 Return Line Valves for venting Steam Mains into Dry Return.

1 No. 03 Hoffman Differential Loop, including one No. 15 Vacuum Valve.

1 No. 14-A Hoffman Kompo Gage.

Class "B" Basement Specialties for installations of 2001 to 3500 square feet Direct Radiation, consisting of:

3 No. 18 Return Line Valves for venting Steam Mains into Dry Return.

1 No. 02 Hoffman Differential Loop, including one No. 15 Vacuum Valve.

1 No. 14-A Hoffman Kompo Gage.

Class "D" Basement Specialties for installations of 7501 to 15,000 square feet Direct Radiation, consisting of:

6 No. 18 Return Line Valves for venting Steam Mains into Dry Return.

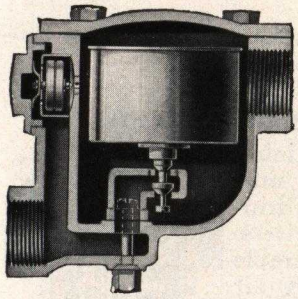
1 No. 04 Hoffman Differential Loop, including two No. 15 Vacuum Valves.

1 No. 14-A Hoffman Kompo Gage.

For installations larger than 15,000 square feet of direct radiation, special Loops can be furnished on order

Hoffman Float and Thermostatic Traps

No. 24 Drip Trap



The No. 24 Hoffman Drip Trap is particularly well equipped to perform the important service of keeping Risers, Steam Mains, Unit Heaters, and similar apparatus free of all air and condensate. In addition to dependable operation, this trap is remarkable for its unusual combination of two desirable features—large capacity and compactness.

The small size of the No. 24 Hoffman Trap is made possible by its direct-acting float. It features a double-seated valve, balanced against steam pressure—an exclusive design.

The ports are deeply water-sealed at all times, preventing steam loss into the return.

A considerable quantity of scale and dirt can accumulate before valve operation is obstructed, since the discharge ports are raised well above the trap body. In addition, the valves close against sharp-edge seats, minimizing the effect of dirt which may reach the ports.

Initial and entrained air is quickly vented directly to the return through a by-pass controlled by a sensitive thermostat. This unit can be easily removed for inspection or cleaning without removing the cover plate.

All parts of the No. 24 Trap are readily accessible and renewable. The valve is held in position by two tie rods which extend through the trap body. By loosening the tie rod nuts, the float and valves can be removed as a single unit. The trap weighs only 4¾ pounds and can be installed directly in the pipe line without special support. In every way this trap is a Hoffman precision product, designed and built to the usual high standards of Hoffman workmanship and material.

Pipe connection ¾-inch. Max. guaranteed operating pressure, 15 lbs.

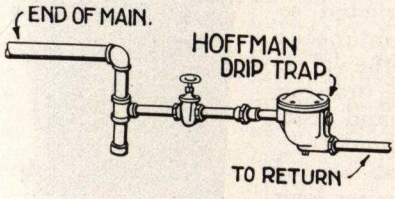
Capacity Table—No. 24 Trap

*Capacities in lbs. of water per hour

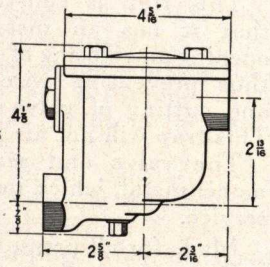
Pressure difference in lbs. per square inch

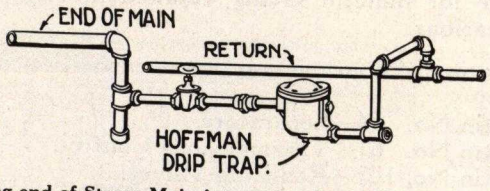
Pressure Difference.	1	2	3	4	5	7	10	15
Lbs. per hour.....	650	740	830	920	1020	1170	1380	1520

*To obtain capacities in square feet of direct radiation, multiply above capacities by 4.



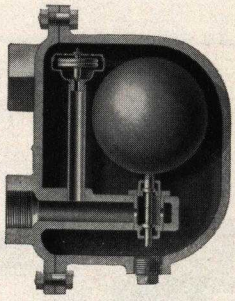
Dripping Short Steam Main





Dripping end of Steam Main into return located above Trap outlet—but lower than the Steam Main.

Heavy Duty Traps



By quick, continuous discharge of air and large quantities of condensate, these traps insure maximum operating efficiency of long Steam Mains, Unit Heaters, Blast Coils, Hot Water Generators, etc.

Hoffman Heavy Duty Traps are similar in principle to the Hoffman No. 24. They embody the same balanced, double-seated valve construction which permits the use of a direct-acting float. This construction makes possible a very compact unit without sacrifice of capacity.

Cleaning or renewal of seats is a simple job. The double valve is assembled into a single unit quickly and easily removed.

The valves also close against sharp edge seats, which cause scale to be cut or pushed away from the port.

All initial and entrained air is discharged through a by-pass controlled by a sensitive Thermostatic member located above the water line. Removal of body casting exposes all working parts without touching the pipe connections.

The smaller Hoffman Heavy Duty Trap is furnished with 1-inch or 1¼-inch inlet and outlet connections; the large capacity trap with 1½-inch or 2-inch connections. For convenience in ordering the four standard sizes are designated as follows:

No. 25, 1-inch; No. 26, 1¼-inch; No. 27, 1½-inch; No. 28, 2-inch.

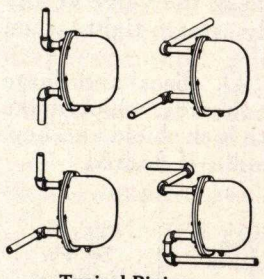
These connections can be bushed to smaller sizes where necessary. Max. guaranteed operating pressure, 30 lbs.

Capacity Table—Heavy Duty Traps

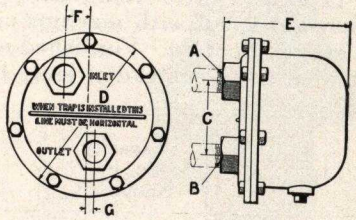
*Capacities in lbs. of water per hour

Trap No.	Pressure Difference in lbs. per square inch										
	1	2	3	4	5	7	10	15	20	25	30
25—1" 26—1¼"	2250	2500	2750	2980	3200	3650	4200	5100	5950	6400	6600
27—1½" 28—2"	3090	3410	3800	4220	4650	5450	6600	8480	10100	11400	12550

*To obtain capacities in square feet of direct radiation, multiply above capacities by 4.



Typical Piping Arrangements



Dimensions for Heavy Duty Traps

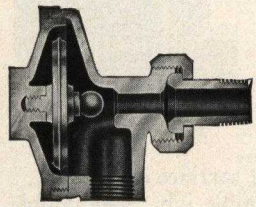
Trap No.	A	B	C	D	E	F	G
25	1"	1"	4 1/16"	9 1/8"	6 7/8"	1 5/16"	7/16"
26	1¼"	1¼"	4 1/16"	1/8"	6 7/8"	1 5/16"	7/16"
27	1½"	1½"	5 5/16"	11 5/16"	8 7/8"	1 9/16"	¾"
28	2"	2"	5 5/16"	11 5/16"	8 7/8"	1 9/16"	¾"

ILLINOIS ENGINEERING COMPANY CHICAGO, ILL.

Racine Avenue and 21st Street
Incorporated 1900

Illinois Heating Systems

Illinois Thermo Radiator Traps



Illinois Thermo radiator trap for vacuum, vapor and low pressure heating systems.

Made with ball and cone type vertical seat upon which dirt cannot lodge. It seats perfectly at all times.

Diaphragm is of special phosphor bronze, with concave sides, which give flexibility and long life.

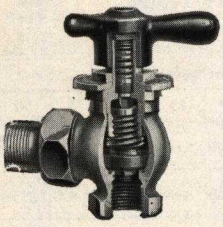
This trap will stand 75 pounds steam pressure. It is strong and durable.

The body of the trap is all brass; furnished in either plain or nickel plated finish.

	Size Inches	Capacity Sq. Ft. Radiation
No. 1	½	100
No. 2	½	200
No. 2-A	¾	200
No. 3	¾	500

Prices furnished upon application.

Illinois Modulating Radiator Valves



This valve is packless; made with a special lever handle of bakelite, which is non-heat conducting and thus prevents the hand from getting burned.

A one-half turn of the handle only is necessary to open or close the valve completely. Intermediate positions give a partial supply of steam. It is equipped with a graduated dial which shows the open or closed condition of the valve at any point. This valve is absolutely steam-tight when closed.

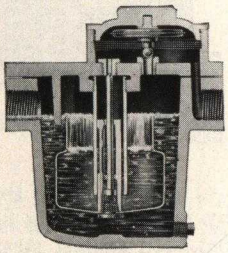
Equipped with removable J. D. discs and large diameter spool with machine-cut threads, which make it easy to operate. Furnished with lock shield and key, or with wheel instead of lever handle, if desired.

Size Inches	Capacity Sq. Ft. Radiation	Size Inches	Capacity Sq. Ft. Radiation
¾	100	1½	400
1	200	2	600
1¼	300	...	...

Illinois Combination Blast Traps



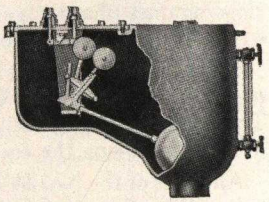
Series 17



Series 18

Ideal for draining ventilating units, unit heaters, and for dripping mains and risers. Where it is desirable quickly to vent air from the main, as well as handle the water of condensation in quantity, whether hot or cold, the Series 18 is used. The Series 17 is unsurpassed for use on unit ventilators in school rooms and also drips.

Illinois Return Traps or Alternating Receivers



This trap automatically puts the condensation back in the boiler regardless of boiler pressure. The float trips the weight mechanism. Operation is positive and forceful, and the mechanism cannot be caught at dead center by water half filling the tank.

It has no external parts to be adjusted or tampered with. All working parts are enclosed in the tank. It has no stuffing boxes.

It will prevent water from being held up in the heating system, and will eliminate the danger of cracked boiler sections.

	Capacity Sq. Ft. Radiation	Shipping Weight Pounds
No. 00	1500	95
No. 0	2500	140
No. 1	5000	305
No. 2	10000	330

Eclipse Steam Traps

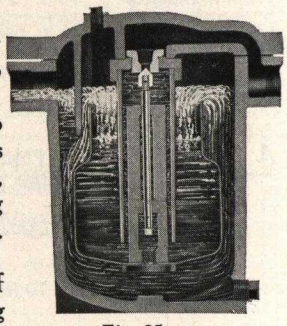


Fig. 35

The valve is always either tight closed or wide open. No intermediate positions.

This trap is constructed so that it has an instantaneous opening and closing of the valve, thus preventing wire drawing and cutting of valve and seat. This trap will not air bind.

The valve and seat are of monel metal, which insures long service.

Made for all pressures up to 250 pounds.

Write for bulletin giving detailed description and specifications.

Write for the following bulletins, which give detailed information of construction, sizes, capacities, weights, dimensions, etc., of Illinois products.

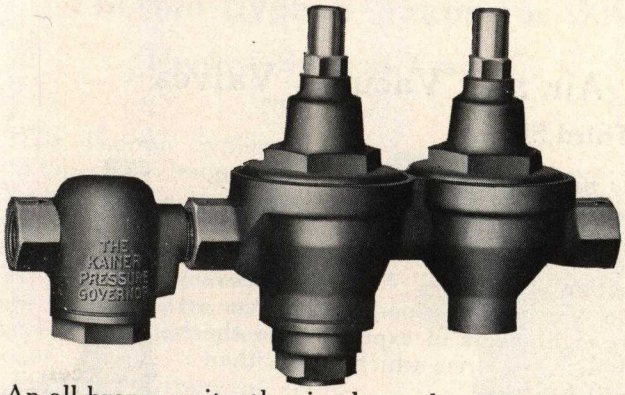
Bulletin No. 15—Heating Specialties.
Bulletin No. 22—Vapor Heating Systems.
Bulletin No. 34—Steam Traps.
Bulletin No. 46—Non-Return Valves.
Bulletin No. 54—Separators.
Bulletin No. 61—Thermal Zone Control.
Bulletin No. 105—Reducing Valves.
Bulletin No. 204—Back Pressure Valves.
Bulletin No. 204—Balanced Valves, etc.

KAINER & COMPANY — CHICAGO, ILL.

General Offices and Factory—761-771 Mather Street
Branch Offices and Representatives in All Principal Cities

KAINER Specialties for Hot Water Heating Systems

KAINER Pressure Governor



An all bronze unit—the simplest valve of its kind on the market. The heart of the valve is the diaphragm. Those used in the KAINER Governor are of phosphor bronze, bellows type, the finest that can be produced regardless of cost. Under ordinary conditions will last a lifetime.

Diaphragm is sensitive to any set pressure and operates the valve on a differential of one pound pressure or less. Valve seat may be easily inspected without disturbing valve assembly.

Every KAINER Governor is carefully inspected and tested before it leaves the factory. The reducing valve is set to close at 10 pounds, and the relief valve is set to relieve at 29 pounds.

Tapped ½-inch. List price.....**$20.00**

KAINER Safety Relief Valve Model R-30

Like all KAINER products the KAINER Safety Relief Valve is constructed entirely of bronze; and its simplicity is an outstanding feature.

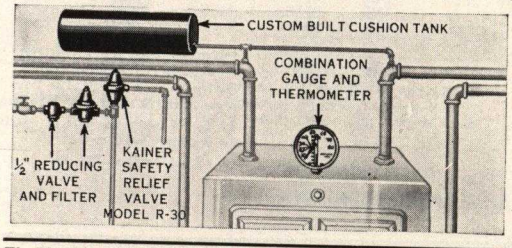


By merely unscrewing the bottom nut, the filter can be cleaned without disturbing the adjustment of the mechanical unit. The valve seat is submerged in water at all times.

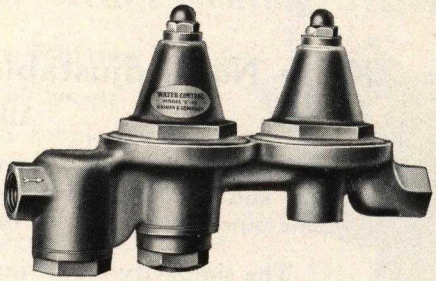
The heart of the valve is the diaphragm. It is of the one-piece bellows type, tested under 400 pounds pressure. It is sensitive and accurate, and under normal working conditions, will last a lifetime. The ideal valve for a tank in the basement system.

Valve is set to relieve at 29 pounds and constructed to limit its adjustment to 35 pounds. Tapped ½-inch standard; ¾-inch tapping furnished when specified.

List price.....**$16.00**



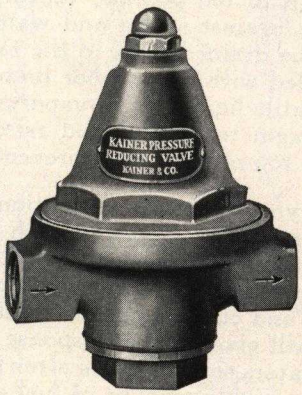
KAINER Water Control Model C-10



To meet the demand for a unit at lower cost, we offer our Model C-10. It is of all bronze construction, and the body is all one casting. Diaphragms consist of three laminations of flat phosphor bronze.

Tapped ½-inch. List price.....**$17.00**

KAINER Pressure Reducing Valve



This valve is used principally on old or new hot water systems which consist of tank and relief valve only. Installing the KAINER Pressure Reducing Valve makes the system fully automatic.

The KAINER Pressure Reducing Valve can also be installed with a KAINER Relief Valve and filter thereby making a manually filled system entirely automatic.

Tapped ½-inch. List price.....**$10.00**

KAINER Angle Relief Valve Model R-100

A very durable relief valve of all bronze construction, utilized for various installations with bronze diaphragm and self-contained strainer. Set for pressures of 50, 75, 100 and 125 pounds. Made in ½-inch and ¾-inch size. Maximum adjustment is limited to factory set pressures.

Set for varying pressures when specified.

When ordering specify desired pressure and size.

List price.....**$7.00**



The tank in the basement installation shown is only one of several combinations possible with KAINER Specialties. Capacities range from 350 sq. ft. to 2000 sq. ft. radiation. Bulletin 32-B shows other arrangements.

Write for complete catalog and discounts.

KELLY BRASS WORKS — CHICAGO, ILL.

Main Office and Factory—226-232 West Ontario Street

Established 1904 — Founders—Finishers

Kelly Non-Adjustable Steam, Air and Vacuum Valves

All Cuts One-Third Size



"Kelly" No. 1 ⅛-Inch Side-Outlet Air Valve for Radiators
List Price, $1.50

The complete line of seven automatic non-adjustable **"Kelly"** Steam, Air and Vacuum **Valves** will fill every air valve requirement for a gravity one-pipe atmospheric or vacuum type heating system.

The simplicity of the interior construction of **"Kelly"** Air Valves, covered by our basic patents, permits us to offer you this perfected valve—which is the achievement of over thirty-eight years of experience in the designing and manufacturing of air valves—at a price which is less than asked for other five year guaranteed quality valves.

All **"Kelly"** Valves are so constructed that no adjustment is required, and no one can possibly tamper with them. They will operate under all pressures up to ten pounds, venting the radiator of the accumulated air and closing against steam and water. Any water of condensation in the valve will be drained back to the radiator through the syphon tube. The float is sealed with a phosphor bronze diaphragm at the bottom and contains a volatile liquid which vaporizes from the heat of the steam, causing the diaphragm to expand and raise the float thereby closing the escape port in the top of the valve, preventing the escape of any steam or water.

We call your particular attention to **"Kelly"** No. 2 **Vacuum** Valves. By installing these valves on each radiator and Kelly No. 6 Quick Vent Air and Vacuum Valves on each dry return any one pipe steam heating system can quickly and easily be completely vacuumized. With all supply valves and connections air tight this will insure a perfect vacuum system that will give quicker response to boiler temperatures—maintain heat in the radiators several hours after the steam pressure has gone down, saving an appreciable amount of fuel and assuring greater convenience, comfort, and more even temperatures.

"Kelly" Valves stand up under long hard service. Every valve is subjected to practical steam and vacuum tests before leaving the factory and is



"Kelly" No. 2 Vacuum ⅛-Inch Side Outlet Air Valve for Radiators
List Price, $3.25



"Kelly" No. 3 ¼-Inch Bottom-Outlet Air Valve for Small Mains, Coils and Risers
List Price, $1.75



"Kelly" No. 4 Vacuum ¼-Inch Bottom-Outlet Air Valve for Small Mains, Coils and Risers
List Price, $3.50

Guaranteed for Five Years



"Kelly" No. 5—⅜-Inch Bottom-Outlet Quick Vent Air Valve for Large Mains and HV Stacks
Note—Contains Float—will close against water.
List Price, $9.50

Complete Satisfaction



"Kelly" No. 7—¾-Inch Bottom-Outlet Quick Vent Air Valve for Large Mains and HV Stacks
Note—Will not close against water.
List Price $6.00

Scientific Construction



"Kelly" No. 6—Vacuum ⅜-Inch Bottom-Outlet Quick Vent Air Valve for Large Mains and HV Stacks
Note—Contains Float—will close against water.
List Price, $12.00

Finest Grade of Materials and Precision Workmanship Throughout

LYTTON MANUFACTURING CORP. FRANKLIN, VA.

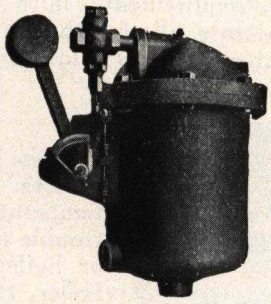
Manufacturers of

Thermo Syphon Traps—Thermo Return Traps—Thermo Lifting Traps—Thermo Vacuum Traps—Thermo Separating Steam Traps—Thermo Reducing Valves—Thermo Blow-Off Valves

Thermo Syphon Traps for All Types of Steam Heating Systems

Thermo Syphon Traps

70 Series

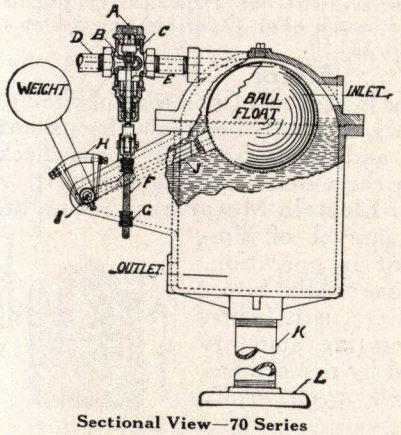


70 Series

The Thermo Syphon Trap was especially designed to handle the condensation from any type of one-pipe or two-pipe steam heating system, there being either a vacuum or pressure in the system and not to exceed 20 pounds pressure on boiler.

Prevents burning or cracking of boilers due to water leaving boiler or becoming locked in system. Assures perfect circulation and noiseless operation of the system.

Operation—The compound steam and vent valve is actuated by the movement of the weight. The float rod is attached to weight rocker "H" and the travel of the float tilts the weight to the right or left beyond a vertical position. When trap fills, the float raises to top of trap and throws the weight to the left. This movement closes the vent valve, and opens the steam valve, admitting boiler pressure to top of trap. The pressure in boiler and trap being thus equalized, the water in trap passes into boiler. At the finish of the discharge, the float tilts weight to the right, which closes steam valve and opens vent valve. We wish to emphasize the fact that there is no pressure in trap while it is filling. The only time that boiler pressure is admitted to trap is during the discharge period.



Sectional View—70 Series

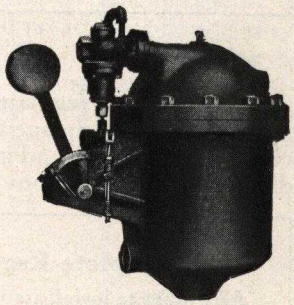
Thermo Syphon Traps—70 Series

Series No.	Pounds Per Hour	Lin. Ft. 1-Inch Pipe	Sq. Ft. Surface	Height Over All	Width Inches	Shipping Weight	Price List
70 Jr.	600	7200	2400	14½	11¼	105	$ 80.00
70	1200	14400	4800	19	13½	180	100.00
71	1920	23040	7680	23½	15¼	240	140.00
72	3180	38160	12720	27½	17	350	190.00
73	6240	74880	24960	32½	20	550	280.00

Prices are F. O. B. Franklin, Virginia. Write for discounts.
Note.—The above capacities are based on one operation per minute and a condensation rate of ¼ pound per square foot per hour.
Prices cover Traps only, and do not include Check Valves, Thermostatic Valves, or Piping.

Thermo Return Traps

80 Series



80 Series

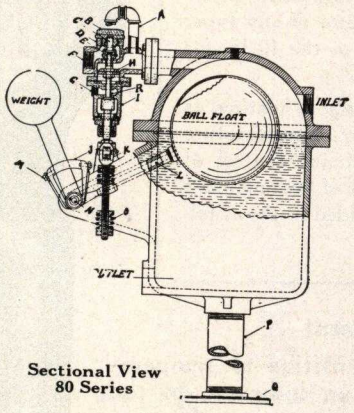
A most simple and positive device for draining any type of steam using apparatus under high pressure. Traps operate on any boiler pressure up to 150 pounds.

The trap must be set 3 feet or more above the high water line of the boiler.

The live steam for equalizing the pressure must be taken direct from the boiler.

A globe valve should be installed in the vent pipe to regulate the vent.

Furnished in 4 sizes for handling from 1250 to 6000 pounds of water per hour. Prices furnished on application.



Sectional View 80 Series

80 Series

Series No.	Lbs. Water Per Hour	Linear Feet 1-Inch Pipe	Pipe Connections: Inlet Ins.	Outlet Inches	Steam Inches	Vent Ins.	Over All: Height Inches	Width Inches	Shipping Wt.	Price List
80	1,250	7,500	1	1	¾	¼	21½	13¾	230	$130.00
81	1,650	10,000	1¼	1¼	¾	¼	24	15¼	300	150.00
82	3,000	18,000	1½	1½	1	¼	29	17	380	200.00
83	6,000	36,000	2	2	1	¼	33¾	20	560	300.00

Prices are F. O. B. Franklin, Virginia.
Note.—Above prices cover Traps only, and do not include piping, check valve or fittings of any kind.

Lytton Pressure Reducing Valves

For Steam or Air



Designed for exacting service requiring close regulation, especially for intermittent work. Built for any initial pressure up to 300 pounds.

Parts are accessible and easy to replace.

Iron body, brass trimmed. Flanged connections above 2 inches.

Composition valve, screwed connections, ½ to 2 inches, inclusive. Flanged connections, all sizes from ½-inch up.

Prices on application.

We solicit your correspondence on heating difficulties and will gladly supply upon request any bulletins or drawings covering correct installation.

MINNEAPOLIS-HONEYWELL REGULATOR CO. MINNEAPOLIS, MINN.

Executive Offices—2801, 4th Ave., So. Factories—Minneapolis, Minn., Elkhart and Wabash, Ind.

BRANCH OFFICES

Baltimore, Md. Boston, Mass. Chicago, Ill. Cleveland, Ohio Detroit, Mich. Hartford, Conn. Indianapolis, Ind. Milwaukee, Wisc. New Haven, Conn. New York, N. Y. Philadelphia, Pa. Providence, R. I. Rochester, N. Y. St. Louis, Mo. San Francisco, Cal. Springfield, Mass. Syracuse, N. Y.

Minneapolis—Honeywell Regulator Co., Limited, Toronto and Montreal.

Distributors in All Principal Cities.

Jewell Temperature Regulators

A temperature regulator to suit every condition and price requirement is in the Jewell line. Every home owner in your city is a prospect for some one of the Jewell regulators, all of high quality Minneapolis-Honeywell precision manufacture and giving that accuracy of operation characteristic of low-voltage current, but each providing different degrees of convenience, according to its price.

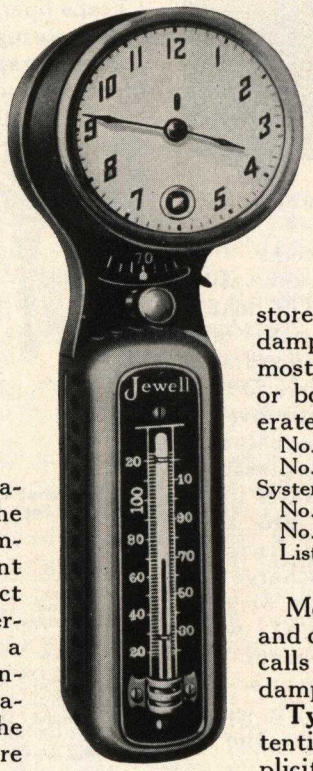
Complete Regulators

All fittings to install are included with each order for a complete regulator; Room Thermostat of any type with motor of any type; as the J8-JE combination, or the J0-JS, for example.

But to achieve utmost safety in heating, as as well as greater uniformity of temperature and full economy, the "limit" control of model applicable to the type of heating plant to be controlled, should be added to the installation.

Thermostat

Consists of element sensitive to temperature changes. You set an indicator to the degree of temperature you want. If temperature varies one degree from this point the thermostatic element makes a contact with the motor in the basement. All thermostats are installed by being attached to a wall plate to which the basement wire connections are made. This simplifies installation and enables you to easily remove the thermostat for adjustment. No conduits are necessary from the thermostat to the motor. as the wires carry low voltage current.



TYPE J8
Eight-Day Clock
Thermostat

Type J-8 Thermostat—equipped with 8-day jewelled clock which automatically sets indicator to desired lower temperature at retiring time at night and returns it to day setting at rising hour in morning—thus saving fuel and providing more healthful sleeping conditions. A lever enables owner to keep temperature up later than usual on any particular night if he so desired. Requires no attention whatever except winding (from the front) once a week. Small in size, attractive appearance, several exclusive features. List price $60.00.



Type J-0 Thermostat—No clock. Temperature change is secured by setting indicator at base of instrument. List price $26.00.

Limit Controls

These important instruments are safety devices. They prevent "overruns" of temperature, save more fuel, and eliminate trouble caused by overheating of furnace or boiler. Installed at the furnace or boiler, they take charge of the dampers before the temperature or pressure at the furnace or boiler rises quite to the danger point, but automatically restore the command of dampers to the room thermostat as soon as the furnace or boiler temperature has moderated to a safe degree.

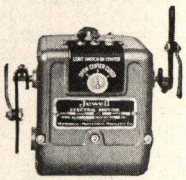


No. 68B Furnaceswitch—For Warm Air Furnaces.
No. 56B Aquaswitch (Surface Type)— For Hot Water Systems.
No. 33B Pressureswitch—For Steam Heating Systems.
No. 42B Vaporswitch—For Vapor Heating Systems.
List Price each, $23.50.

Motor

Motor opens lower draft (by means of chains) and closes check damper when room thermostat calls for heat, and closes draft and opens check damper when thermostat calls for less heat.

Type J. E. Electric Motor requires no attention. A marvel of simplicity. Silent in operation. Will not cause radio interference. Power used when motor is operating amounts only to that consumed by one ordinary lamp, 110 volt, 60 cycle, A.C. List Price $60.00.



Type J.E.S. Electric Motor with Built-in Switch is similar to the Type J. E., with the addition of a built-in switch for controlling blower fans or circulating water pumps. List price $66.00.



Type J. S. Spring Motor—fitted with spring which operates dampers 60 to 75 times on one winding. Necessary to wind spring periodically. Dial on front of instrument indicates when to wind. Can be operated by 2 dry cells. List price $36.00.

Jewell Junior—a complete clock-type, low voltage regulator at very low price.
Discounts: *Less than 12 units 50%; 12 to 24 units 50%-5%; 24 or more 50%-10%.*

"There is a Jewell Temperature Regulator for Every Purse"

The Electric Janitor

An All-Electric Temperature Regulator Priced to Reach the Mass Market

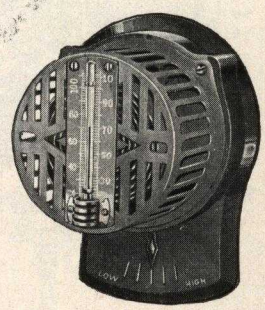
Vastly widened sales opportunities, new sources of profits, are now opened for you with the Electric Janitor. Home owners everywhere want automatic temperature regulation. They know that automatically regulated temperature contributes to healthful living, that it relieves them from a good deal of needless drudgery and that it reduces fuel costs. The Electric Janitor is designed for use on all types of coal-fired heating plants. It is all-electric. The Thermostat is arranged for low voltage circuits, which permits easy and low cost installations. The Electric Janitor is furnished complete with all fittings—ready for installation. The low cost of the Electric Janitor places it within the reach of every home owner—your sales possibilities are unlimited.



$49.00 LIST

INCLUDES
Electric Motor—Plain Thermostat
Transformer—Fittings

Discounts
1-5—50%
6-11—50-5%
12 or more—50-10%
F.O.B. Factory



The Electric Motor

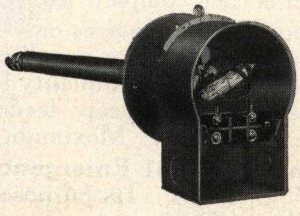
All the materials in the Electric Janitor Motor have been selected to insure reliable performance and uninterrupted service. This motor requires no attention or lubrication.

The Thermostat

This accurate temperature control maintains room temperatures within two degrees. It employs a Con-Tac-Tor mercury switch to provide dependable switching action. The bakelite base of the thermostat is finished in a rich walnut brown, the cover in an attractive bronze.

Limit Controls for Use with Electric Janitor

Used with the Electric Janitor a Limit Control prevents excessive temperatures in a furnace or pressures in a boiler. There is a limit control for each type of heating system. This positive control of the furnace or boiler at all times, affords protection to the heating system, more even and comfortable heating, and a greater saving in fuel.



No. 68B Furnaceswitch—For Warm Air Furnaces.

No. 56B Aquaswitch (Surface Type)—For Hot Water Systems.

No. 33B Pressureswitch—For Steam Heating Systems.

No. 42B Vaporswitch—For Vapor Heating Systems.

List price each $23.50. Discounts: Less than 12 units 50%; 12 to 24 Units 50%-5%; 25 or more 50%-10%.

Time-O-Stat Controls Division of Minneapolis-Honeywell Regulator Co., Elkhart, Ind.

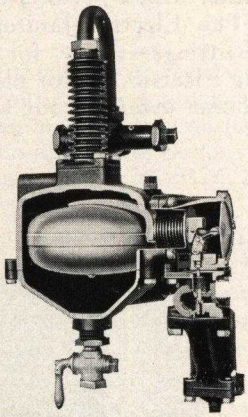
Executive Offices, Minneapolis, Minn.

McDONNELL & MILLER CHICAGO, ILL.

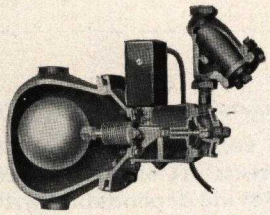
General Offices—Wrigley Building

"Doing One Thing Well"

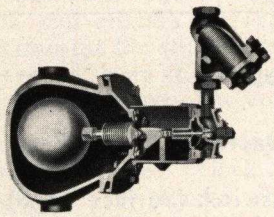
Products: McDonnell Boiler Feeders for automatically maintaining the boiler water level in all types and sizes of low pressure steam, vapor, or vacuum boilers, in this way protecting the boiler from the costly repairs and shutdowns that occur when someone forgets the boiler water line.



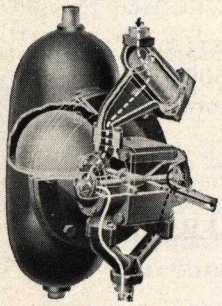
The McDonnell No. 37 Safety Feeder for boilers under 2500 square feet.



The McDonnell No. 30 Series Safety Feeder combined with the No. 31 Emergency Switch



The McDonnell No. 30 Series Safety Feeder



The McDonnell No. 28 Self-Cleaning Rotary Valve Duplex Feeder

The McDonnell (No. 30 Series) Safety Feeder

This series of feeders covers the whole range of boiler protection requirements from smallest to largest. The McDonnell Safety Feeder acts simply as a safety device—is positioned low on the boiler so that it begins to supply water only when the water line falls into the danger zone.

Regardless of size, all feeders of the No. 30 Series share one towering feature that has won them an unequalled reputation for dependability. The one cause of trouble in all former feeders—lime and scale at the feed valve—has been eliminated by locating the feed valve 4½ inches from the heat of the float chamber. As a result, the water surrounding the feed valve never reaches the critical point at which lime and scale is precipitated. Laboratory tests prove that this is true. With six pounds steam pressure on the boiler and the feed-valve closed, the float chamber becomes so hot that it can not be safely touched with the finger. But even under such extreme conditions the temperature at and around, the feed valve never exceeds 114 degrees F. With identical conditions, the valve temperature of other feeders is in excess of 190 degrees F. At this temperature, lime and scale **is** precipitated out of the water. A feeder with a high valve temperature **must** fight scale. McDonnell Safety Feeders have **no scale to fight.**

All McDonnell No. 30 Series Safety Feeders also have hardened stainless steel valves and seats which have proved their superiority in service. No stuffing boxes are used. A Sylphon bellows eliminates the stuffing box between the float chamber and lever compartment, and another smaller bellows does away with the stuffing box between the levers and the feed valve. This construction is practically frictionless, entirely leak-proof, and, still more important, it seals all operating parts away from the heat of the float chamber.

The McDonnell No. 30 Series includes:

No. 30-S—(Small) Safety Feeder for all boilers up to 5000 feet capacity. (Maximum allowable steam pressure, 15 pounds).

No. 30-L—(Large) Safety Feeder for heating boilers above 5000 feet capacity, also for process boilers as in bakeries, etc. (Maximum steam pressure, 25 pounds)

No. 37—Safety Feeder is the latest addition to the No. 30 Series. It incorporates the many features that have given the 30 series a reputation for absolute dependability, and, in addition to this, it offers an ease of application that has never before been possible in boiler feeders. To install the No. 37 simply remove the gauge glass, screw the feeder body nipple into the lower gauge glass tapping, and them move the gooseneck (see illustration) until it coincides with the upper gauge glass tapping. After making the upper connection, the gauge glass is installed **on the feeder.** The installation is then complete except, of course, for the water connections.

This whole installation requires only ten or twelve minutes. Contrast this with the labor formerly required for installing water equalizing pipes. As a result, the new No. 37 Feeder, although a quality feeder throughout, can be sold at a lower installed price than socalled "cheap" feeders. The No. 37 is ideal for all small boilers (up to 2500 feet capacity). Maximum allowable steam pressure, 15 pounds.

The McDonnell No. 31 Emergency Switch is for combination with any 30 series feeder (30-S, 30-L). Its purpose is to give double protection to oil-fired or stoker-fired boilers. During normal operation the feeder maintains the boiler water level always up to a safe height, but if excessive priming or foaming causes the water to leave the boiler faster than the feeder can supply it, the switch stops the burner or stoker until the emergency is passed. Feeders can be ordered with switch attached as (30-S-31, 30-L-31, or 37-31). Or switch can be applied to any 30 series feeder by simply substituting cover plate to which it is attached for cover plate of feeder.

McDonnell No. 28 Self-Cleaning Duplex Feeder is for application wherever a duplex feeder is required. Maximum steam pressure, 15 pounds. **Not** recommended for use where boiler will operate under a vacuum.

McDonnell No. 32—a very high grade individual low water cut-off.

NATIONAL REGULATOR COMPANY CHICAGO, ILL.

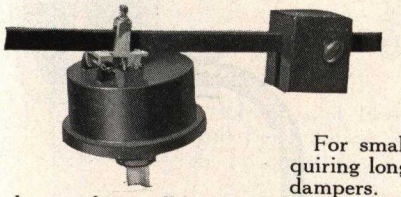
2310 Knox Avenue

TRADE METAPHRAM MARK

Metaphram Low Pressure Regulators

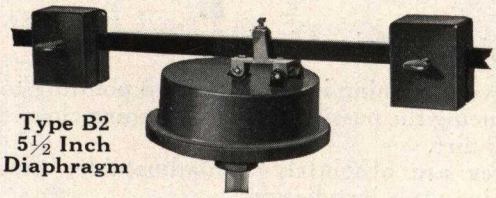
METAPHRAM Low Pressure Regulators are made for all domestic heating boilers operating on steam pressures of 15 pounds or less, in a range of stock sizes and types to meet all operating conditions. Their entire design is directed toward powerful, gradual action and elimination of all lag or jerk in control movement. Friction and binding in all types is reduced to a minimum through the use of patented lever mountings and adjustment features.

METAPHRAM Low Pressure Regulators are equally adaptable to damper control on hand fired boilers, or automatic control of gas, oil or stoker fired boilers.



Type A2, 4 Inch Diaphragm

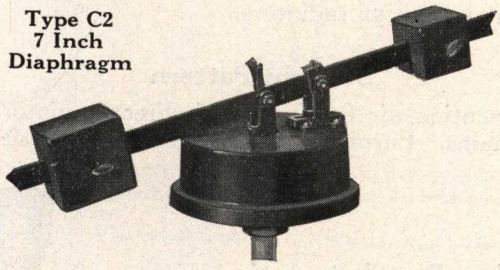
For small low-pressure boilers requiring long travel on draft or check dampers. Type AA, 4-inch diaphragm, for small boilers with balanced dampers requiring a travel of less than three inches.



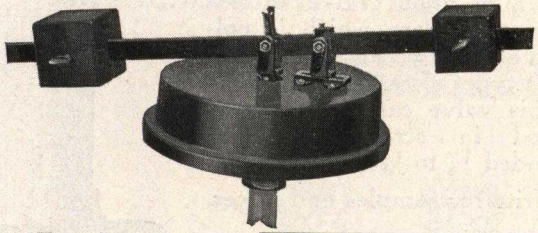
Type B2 5½ Inch Diaphragm

For medium size, low pressure boilers.

Type C2 7 Inch Diaphragm



For either low pressure or vacuum systems. Universal adjustment feature simplifies adaption and insures perfect damper control.



Type D2 10 Inch Diaphragm

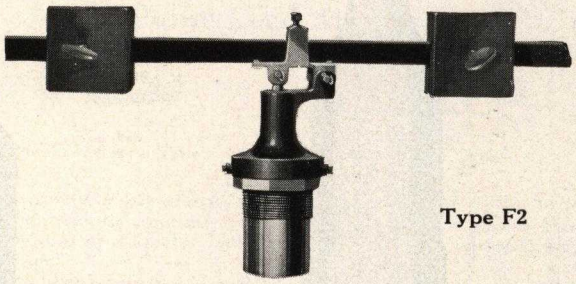
For low pressure, vapor or vacuum. Shifting of weights and lever and universal adjustment feature of fulcrum provide for adaption to either system. Extremely sensitive and very powerful.

Regulator Number	Boiler Connection Inches	Shipping Weight Pounds	List Price
AA	¾	10	$12.00
A2	¾	15	15.00
B2	¾	20	18.00
C2	1	35	20.00
D2	1	55	27.00
F2	2	11	18.00
H	1	10	15.00

Every regulator is shipped complete with chain, weights, etc., and installation instructions.

Complete descriptive bulletin on request.

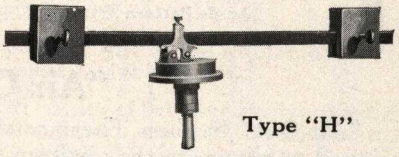
Metaphram Hot Water Regulators



Type F2

The Type F2 Damper Regulator for large round, sectional or steel boilers, giving gradual control movement to the heaviest dampers—a simple, compact, yet powerful control unit that insures a rate of combustion to provide uniform water temperature on hand fired boilers.

Hub is threaded for standard 2-inch I. P. connection.



Type "H"

The Type "H" Damper Regulator for small jacketed or non-jacketed hot water boilers and tank heaters—specially developed to meet the popular demand for a small, compact damper regulator that would conform to the design of the new, small hot water plants.

Offered in two styles:

Type "H," with short shank, for installation in non-jacketed boilers and tank heaters, (Fig. No. A).

Type "H2," with long shank for installation in jacketed boilers, (Fig. No. B).

Both styles are threaded for 1-inch I. P. connection.

Complete descriptive bulletin on request.

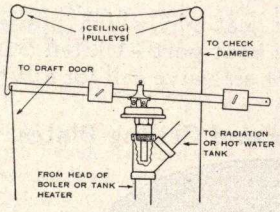


Fig. No. A

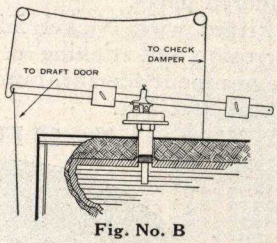


Fig. No. B

A-Jacks Steam-Damper Regulator

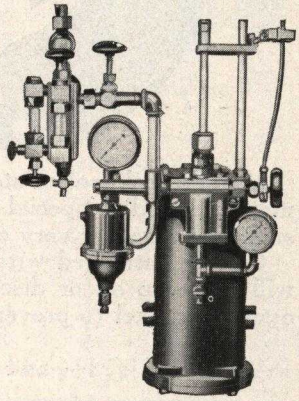
For High Pressure Boilers

Operates on dry steam, at boiler pressure, piped direct from main header. Gives accurate, automatic control of combustion to produce and maintain desired boiler pressure.

On hand fired boilers, it controls damper only.

On stoker fired boilers it controls damper and stoker speed—either electric or engine drive. On stoker plants with forced draft, it synchronizes control of stoker, blower and damper.

Complete catalog showing installations will be mailed on request.



NEW YORK AIR VALVE CORP. NEW YORK, N. Y.

476 Broome Street

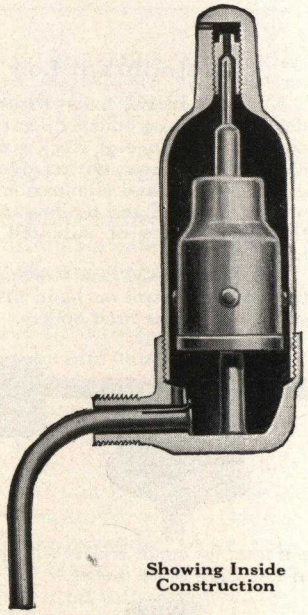
AIR-OUT
GUARANTEED
5 YEARS



Angle Pattern



Straight Pattern



Showing Inside Construction

"Air-Out" Syphon Thermostatic Air Valves

"Air-Out" Syphon Thermostatic Air Valves are designed to eliminate the air from radiators. They operate by the expansion and contraction of a phosphor bronze diaphragm, soldered on the bottom of a brass float, containing a volatile liquid. This float is large in size allowing ample capacity of the necessary pressure to operate the diaphragm.

Float has four "bumps" to keep same in alignment.

The base of the "Air-Out" Valve is of heavy cast brass. It is highly polished all over. There are no soldered parts.

Fitted with Nickel Silver seat pin which prevents corrosion and sticking at the vent port—United States Government specifications for air valve call for a White Metal Seat Pin.

The vent opening is on side of cap pointing to radiator reducing the possibility of the opening clogging from settling dirt.

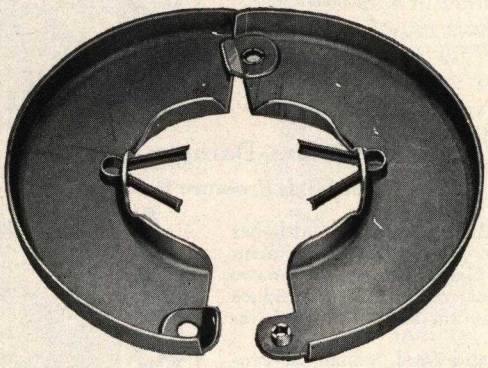
Valves are absolutely non-adjustable, preventing tampering after installation.

Will fit all types of radiators including the new pattern narrow section radiators.

Straight Pattern

For venting air from risers, indirect radiators and cellar mains. Furnished in ⅛, ¼ and ¾-inch sizes.

Warner's No. 10 Floor and Ceiling Plates



Made of cold rolled steel, copper plated and heavily nickel plated. Special locking arrangement makes snapping together very easy.

Can be furnished with a White Enamel finish that will not chip off or discolor. The Enamel is applied over the nickel to prevent rusting on underside.

Sizes

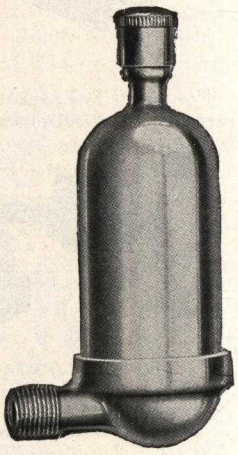
½, ¾, 1, 1¼, 1½ and 2 inches. Standard list prices.

Carbon Post Automatic Air Valves

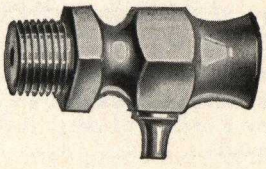
A high grade valve with a heavy cast base which is polished and plated all over. Will fit all types of radiators.

This valve can also be furnished in straight pattern, threaded ⅛ to ¼ inches.

Write for samples and prices.



Key Air Valves



A high grade air valve polished and nickel plated all over. Can be furnished with key or wood wheel as desired. Packed two dozen to the box.

THE PAINE COMPANY — CHICAGO, ILL.

2947-2951 Carroll Avenue

Sales Offices:

New York, N. Y., 79 Barclay St.
Los Angeles, Cal., 923 E. Third St.
Denver, Colo., 7th and Lawrence.
Seattle, Wash., 3006 Western Ave.,
Toronto, Ont., Can., 122 Front St.
Atlanta, Ga., 272 Marietta St.
San Francisco, Cal., 765 Minna St.
Dallas, Texas, 2020 Lomar St.

Sink Bolts



Fig. 20

Toggle Bolts

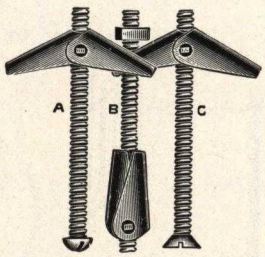


Fig. 123

Fig. No. 20—Sink Bolts, Iron or Brass; Nickel Plated.
Fig. No. 123—Toggle Bolts, Spring Wing Iron or Brass. Any style head. Sizes 6-32, 1/8, 3/16, 1/4, 5/16, 3/8 and 1/2-inch. Any length.

Hanger Rings—Wire Pipe Hooks Flattened End Lag Screws

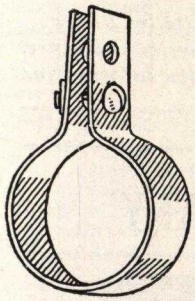


Fig. 600

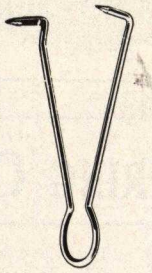


Fig. 610

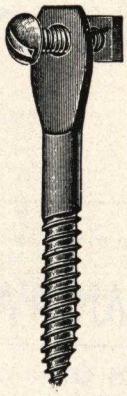


Fig. 650

Fig. No. 600—Hanger Rings for 1/2-inch to 8-inch pipe.
Fig. No. 610—Wire Pipe Hook. 4, 6, 8 and 10-inch lengths. 1/2 to 2-inch pipe sizes.
Fig. No. 650—Flattened End Lag Screws, 1/4, 5/16, 3/8 and 1/2-inch.

Turned Eye "U" Hangers—Hanger Bar Galvanized Pipe Straps

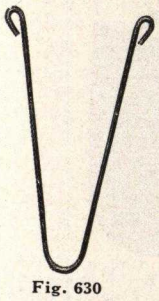


Fig. 630

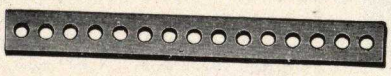


Fig. 500

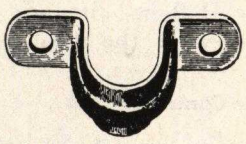


Fig. 700

Fig. No. 630—Turned Eye "U" Hanger. Sizes for 3/4 to 6-inch pipe, or 5/16-inch to 5/8-inch rod, in lengths from 6 to 16 inches. Meets general specifications for sprinkler work.
Fig. No. 500—Hanger Bar, 5 and 10-foot lengths. 3/4, 7/8, 1, 1 1/8, and 1 1/4-inch widths.
Fig. No. 700—Galvanized Pipe Straps. 1/4-inch to 4-inch. In bulk, 25-pound or 5-pound cartons.

Paine Lead Anchors



Fig. 900
Machine Screw Type

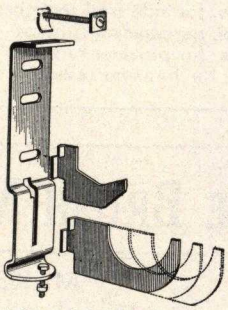


Fig. 910
Bolt and Nut Type

For attaching any article, regardless of weight or strain, to solid material, such as concrete, brick, tile, slate, marble, stone, etc.
Minimum of diameter and depth of hole required for powerful anchorage.
Assembled ready for installation. Setting tools furnished with anchors.
We give our Lead Anchors the same unconditional guarantee that we do Paine Spring Toggle Bolts.

Paine Improved Adjustable Radiator Bracket

Simplest in Construction of Any of the Adjustable Radiator Brackets on the Market



A Separate Foot Bracket is made for each of the 3-4-5-6 Tube Radiators

It consists of but three separate pieces; the wall piece which can be adjusted to the extent of 1 1/2 inches vertically and 1 1/4 inches horizontally, the foot bracket, which has an adjustability of 1 inch vertically and the bolt and washers, the angular washer of which hooks into the slot at the top of the bracket as a means for holding the radiator firmly against the bracket. This slot gives an adjustability of 1 3/4 inches. The radiator extends 1 1/2 inches from the wall when set in its final position. This radiator bracket is made of pressed steel, 3/16-inch material by 2 1/2 inches wide for the wall piece, using 1/8-inch stock for the foot bracket upon which the radiator rests, and is made in two lengths, 10 and 16 inches.

These brackets come packed in individual cartons, which also contain a 3/8x2 5/8-inch Paine Expansion Shell and Bolt, for use in attaching the bracket to brick, concrete, or other solid material, and a 3/8x3-inch Lag Screw for use in attaching the bracket to wood studding, as well as a 3/8-inch washer to be used with either the expansion shell or lag screw. Two expansion shells and lag screws supplied with the 16-inch brackets. This makes the complete unit, ready for installation in any kind of material, and is a means of saving considerable time in assembling the parts before sending the workman to the job.

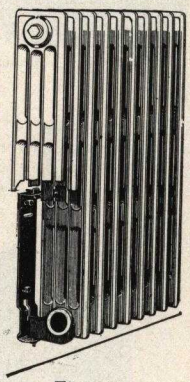


Fig. 820

Sizes and List Prices

10-INCH SIZE				16-INCH SIZE			
Tube	No. to Case	Total Weight Pounds	List Price Each	Tube	No. to Case	Total Weight Pounds	List Price Each
1 and 2	36	93	$1.00	1 and 2	24	86	$1.40
3	36	101	1.25	3	24	92	1.65
4	36	104	1.35	4	24	94	1.75
5	36	107	1.45	5	24	96	1.85
6	36	110	1.55	6	24	98	1.95

SAVO MANUFACTURING CO. CHICAGO, ILL.

Dept. No. 8. 1400 Merchandise Mart Building

SāVō Air Moisteners

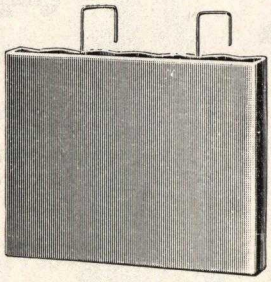
Complete line of SAVO AIR MOISTENERS for all styles of Steam and Hot Water Radiators. Made of ARMCO galvanized steel, nicely finished in Aluminum and Gold Bronze. SAVO's make perfect contact to the coils thus the water becomes hot and evaporates rapidly. Can be placed on the back of any radiator out of sight. Other styles for Pipe and Pipeless Furnaces which are very effective.



Style No. 7—For Pipeless Furnace

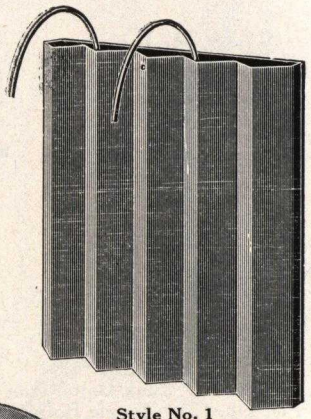
Guaranteed

Nationally Advertised



Style No. 9
For Fantom Radiators





Style No. 1
For Radiators



Style No. 5
Sets in Hot Air Pipe
Under Floor Register

No. 1—Height, 14 inches, Width, 12½ inches, for 6 to 20-coil radiators
No. 2—Height, 14 inches, Width, 8 inches, for 4 or 5-coil radiators
No. 3—Height, 9 inches, Width 12½ inches, for low radiators
No. 4—Height, 9 inches, Width, 5 inches, for 3-coil radiators
No. 5—Height, 6 inches, Width, 8 inches, for floor registers
No. 6—Height, 9 inches, Width, 12½ inches, for side wall registers
No. 7—Height, 12 inches, Width, 16 inches, for pipeless furnace
No. 8—Height, 12 inches, Width, 12 inches, for pipeless furnace
No. 9—Height, 12 inches, Width, 15 inches, for Fantom radiators

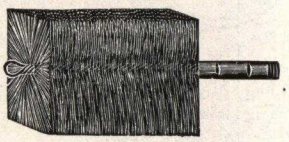
Write for Prices Discounts and More Detailed Information

THE MILWAUKEE BRUSH MANUFACTURING COMPANY

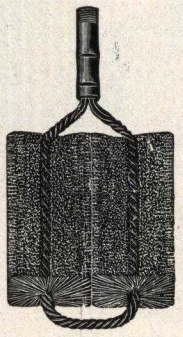


Style C—Oval

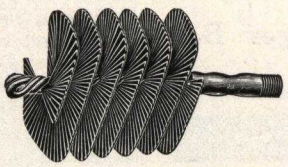
MAKERS OF
Brushes & Brooms
Wire—Bristle—Fibre
MILWAUKEE
WISCONSIN



Style D



Style A



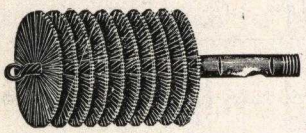
Style M

Manufacturers of a full line of Steel Wire Flue Brushes for cleaning Hot Water Boilers, Steam Boilers and Hot Air Furnaces. A few of the most popular brushes are illustrated.

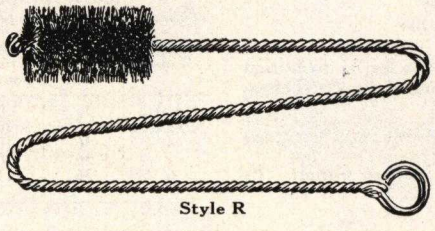
Write for Catalog and Prices on Our Complete Line



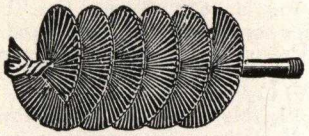
Style B



Style U



Style R



Style S

THE POWERS REGULATOR COMPANY

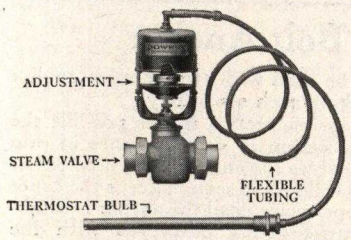
2757 Greenview Avenue, CHICAGO, ILL. 231 East 46th Street, NEW YORK, N. Y.

Offices in 43 Cities

Powers Hot Water Tank Regulators

For Steam Heated Hot Water Service

The Powers No. 11 Regulator



Self Contained

:::

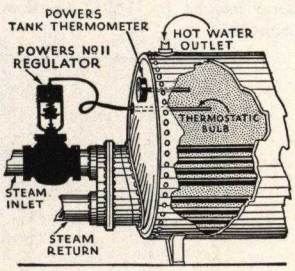
Accurate

:::

Durable

Adjustment—Collar and spring as above for all sizes up to 4 inches, inclusive. Sizes above 4 inches have lever and weight adjustment.

Valves—Double seated semi-balanced type. Sizes ½-inch to 1½-inch, inclusive are of steam metal with union connections. 2, 2½ and 3-inch iron body screwed ends. 3½-inch and larger, flanged body, F. and D. standard. Companion flanges can be furnished at market prices. All iron body valves have interior parts of hard steam metal.



Bulbs—Sizes ½-inch to 4-inch, inclusive, require 1-inch I. P. tapping; 5-inch to 8-inch, 1¼-inch I. P. tapping. Special bulbs can be furnished at additional cost, for exposure to various chemicals, also for wood tanks and vats.

Range—Standard temperature range is set for operation at 160 deg. and can be adjusted 20 deg. above and below that point. Other ranges of 40 deg. not extending below 80 deg. or above 250 deg. can be supplied at no extra cost. For swimming pool control, a regulator with a special range and set at 80 deg. will be furnished when so specified in the order at no extra charge.

Tube Length—Flexible connecting tube, sizes ½-inch to 1½-inch, inclusive, 6 ft. long; 2 inch to 4 inch, 8 ft. long; above 4-inch, 10 ft. long. Additional length flexible tube furnished at $0.30 net per foot.

High Steam Pressure—We recommend Monel Metal fitted valves for pressures above 100 lbs.

Lever and Weight Adjustment for valves 4 inches and smaller will be furnished if desired, and without extra charge.

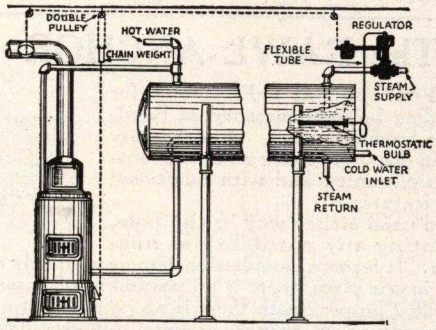
No. 11 Regulator, Spring Closed (Reverse Acting)—For an extra charge of $2.50 net, the No. 11 Regulator can be furnished with a spring closed reverse acting valve, which will open with rising temperature—used to control a cooling medium—specify No. 11 Regulator, spring closed valve.

List Price and Shipping Weights
Powers No. 11 Regulator

Size Valve, inch	¼	½	¾	1	1¼	1½	2
Standard Valve	$40	$60	$65	$70	$75	$80	$90
Monel Fitted Valve	.....	67	72	78	83	92	104
Three Way Valve	40	.....	70	75	80	90	105
Shipping Weights, pounds	20	31	33	34	35	36	55

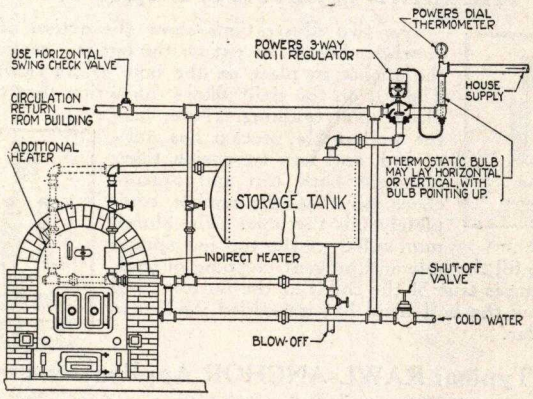
Size Valve, inch	2½	3	3½	4	5	6	8
Standard Valve	$ 95	$100	$110	$120	$175	$225	$275
Monel Fitted Valve	110	118	135	150	215	.....	.....
Three Way Valve	120	130	150	175	.....	.....	.....
Shipping Weights, pounds	77	82	115	120	182	236	355

The Powers No. 12 Regulator



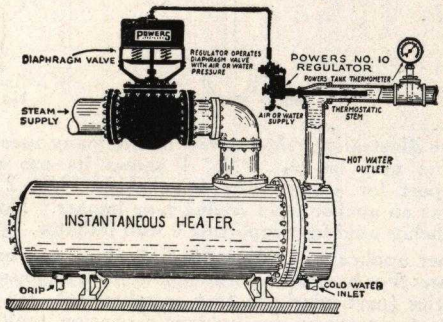
No. 12 Regulator for Independent Heater Control. A set of chains and pulleys will be supplied **at no extra charge** with lever and weight adjusted No. 11 regulator, any size, when it is desired to control both steam supply and auxiliary coal fired heater.

The Powers No. 11 Regulator—3 Way Valve



For indirect type heaters the Powers No. 11 regulator with 3-way valve is recommended. This regulator will temper the hot water with cold so that the desired temperature is maintained. Standard Range of this regulator is 140° to 180° F. See Price List below at left.

The Powers No. 10 Regulator



No. 10 Regulator operated by either compressed air or water pressure for control of large valves, swimming pool heaters, etc. Write for Bulletin No. 2035.

For Powers Shower Mixers See Pages 572 and 573

THE RAWLPLUG COMPANY, INC. NEW YORK, N. Y.

Main Office—94 Lafayette Street

NAMES AND ADDRESSES OF OUR REPRESENTATIVES:

Albany, N. Y., H. B. Kimmey, 27 Columbia St.
Atlanta, Ga., Carnes & Carnes, 135 Marietta St.
Boston, Mass., H. A. Howard, 261 Franklin St.
Buffalo, N. Y., L. O. Bernicke, 156 Main St.
Chicago, Ill., The Rawlplug Distributing Co., 548 W. Washington Blvd.
Cleveland, Ohio, The Rawlplug Company, Inc., 2032 E. 22nd St.
Dallas, Texas, Sam A. Wing, Allen Bldg.
Denver, Colo., Western Rawlplug Co., Inc., 1156 California St.
Des Moines, Iowa, J. A. McCoy, 547 Insurance Exchange Bldg.
Detroit, Mich., Richards & Co., 317 Garfield Bldg.
Grand Rapids, Mich., G. K. McMullen Co., 201 McMullen Bldg., 23 Division Ave., S.
Houston, Texas, Builders Special Products Co., 1701 Oliver St.
Kansas City, Mo., J. C. Neville Co., 1332 Oak St.
Los Angeles, Cal., The Demmert Co., 106 W. Third St.
Miami, Fla., Wister & Kline, 1136 N. E. Second Ave.
Milwaukee, Wis., Sterling Engineering Co., 3738 N. Holton St.
Minneapolis, Minn., J. K. Heymer, 712 Sixth Avenue, So.
New Orleans, La., Modern Appliance Co., 4300 Washington Ave.
Philadelphia, Pa., The Rawlplug Company, 1509 Arch St.
Pittsburgh, Pa., L. H. Lee, 922 Empire Bldg.
San Francisco, Cal., The Rawlplug Sales Co., 1135 Mission St.
Seattle, Wash., J. H. Sutthoff, Lowman Bldg.
St. Louis, Mo., Rawlplug St. Louis Co., 526 N. Vandeventer Ave.
Washington, D. C., Washington Rawlplug Co., 201 Barr Bldg.

The RAWL-ANCHOR—A One Piece Multi-Unit Bolt Anchor



The Rawl-Anchor is as indispensable for securely holding bolts in masonry as Rawlplugs are for holding screws. It is the only bolt anchor in one unit having all the advantages of multiple units, and with additional outstanding features.

It may be used either way in the hole, thus preventing any possibility of misapplication. It forms a complete anchorage with only one caulking. Made in one piece, there is no possibility of misassembling. If hole is drilled proper depth there is no necessity of using additional anchorages, grout, or other material to fill the hole.

The Rawl-Anchor when properly caulked at a sufficient depth will develop the entire strength of the bolt or the surrounding material, thus rendering two or more units unnecessary.

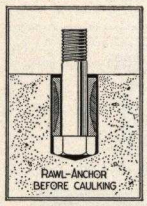
If greater holding power is required and the masonry is sufficiently strong to carry the load, special high carbon heat treated bolts may be used with two or more anchor units, caulking each separately.

The collapsible section makes possible the correct application of **double** cones in **one** unit, and enables the anchor to be used either way. This collapsible section keeps the cones in their proper place until the anchor is caulked and **immediately collapses** with the **first blow,** allowing the two cones to come as nearly together as possible, expanding the lead so that it will fill the hole even if the hole is irregular and oversized.

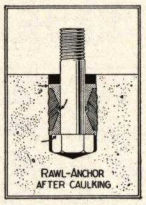
Because of the use of aluminum in the anchor it is relatively lighter than anchors using cast iron, malleable iron, etc., in conjunction with lead.

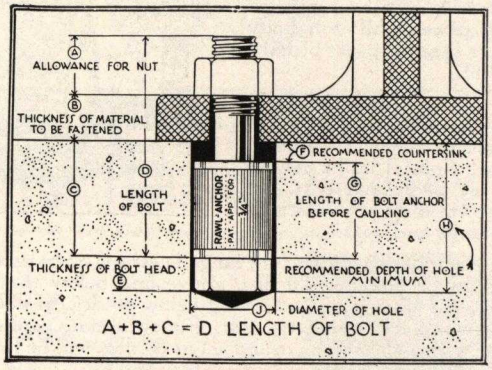
ONE caulking operation caulks ONE RAWL-ANCHOR to the same height as TWO caulking operations caulk TWO multiple anchors.

THE RAWL-ANCHOR is Easy to Use

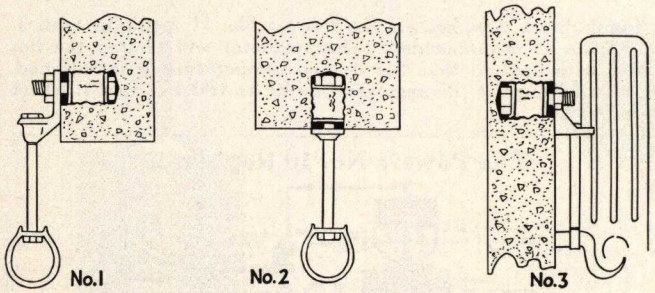


The two illustrations show the action of the Rawl-Anchor. The cut on the left is a section of the anchor in place on the bolt before caulking. The cut on the right shows the action that takes place upon caulking. Note how the collapsible section has telescoped, and how expansion takes place at both top and bottom cones, so that the anchor completely fills the hole. The aluminum collar at the top has spread so as to fill the hole and prevent creeping of lead. The same is true of the collar at the bottom, and note how the bolt head has imbedded itself into this collar.





Typical RAWL-ANCHOR Applications



The above illustrations show a few of the many uses to which Rawl-Anchors may be put. No. 1 shows its use as a pipe hanger support for a horizontal installation. No. 2 shows it being used as an anchor for a ceiling pipe hanger. No. 3 shows the Rawl-Anchor used for supporting a wall radiator.

Some other applications where Rawl-Anchors can be used to advantage are: For hanging suspended unit heaters; for supporting wall lavatories (particularly factory installations); for attaching pipe railings to masonry; for holding expansion tanks, storage tanks and other boiler room appliances where such support is needed; for holding pipe racks—in fact, for practically any purpose where it is necessary to anchor to masonry for support.

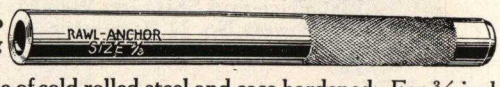
Dimensions and Price List Rawl-Anchors, Type 80

Bolt dimension based on "Mfgrs." or "American" standard Machine bolts.

Diam. Bolt ..... Inches	1/4	3/8	1/2	5/8	3/4	1
Bolt Head	Sq.	Sq.	Sq.	Hex.	Hex.	Hex.
A ..... Inches	3/8	1/2	5/8	3/4	1	1 1/2
C ..... Inches	13/16	1 1/8	1 5/8	1 13/16	2	2 1/4
E ..... Inches	11/64	1/4	21/64	27/64	1/2	21/32
F ..... Inches	1/16	1/8	1/8	3/16	1/4	1/4
G ..... Inches	3/4	1	1 1/2	1 5/8	1 3/4	2
H ..... Inches	1	1 3/8	2	2 1/4	2 1/2	3
J ..... Inches	1/2	*13/16	1	1 1/8	†1 1/4	‡1 5/8
List per 100△ Anchors	$6.00	$8.25	$13.50	$18.00	$26.50	$47.25
Packed in boxes of	100	100	50	50	25	20
Shipping wt. per 100	3	10	28	35	46	75

*Or 3/4". †Or 1 3/8". ‡Or 1 3/4". △ Bolts not included.

The RAWL-ANCHOR Caulking Tool



For sizes up to and including 5/8-inch, is tubular in form, made of cold rolled steel and case hardened. For 3/4-inch and 1-inch Anchors, is of the offset type—easy to handle and does not limit length of bolt being used—a tool steel forging, heat treated.

The Rawl-Anchor Caulking Tool is carefully made to exact dimensions and will produce excellent results. However, if desired, any ordinary pipe can be used.

Price List

Size ..... Inches	1/4	3/8	1/2	5/8	3/4	1
Tubular Type, each net	$0.50	$0.60	$0.85	$1.50	.....	.....
Off-set Type, each net	.....	.....	.....	.....	$1.80	$1.80

RAWLPLUGS

REG. U.S. PAT. OFF.

Fibre Screw Anchors

HOLD SCREWS FAST

RAWLPLUGS are made from stiffened strands of tough jute fibre. The fibre strands are cemented together by a patented process. Once in place, a Rawlplug can never crumble or pulp. It is unaffected by moisture or change in temperature.

As the screw enters the Rawlplug, the jute fibre strands are expanded in all directions. Compressed against all sides of the hole, the entire Rawlplug becomes an integral part of the surrounding material.

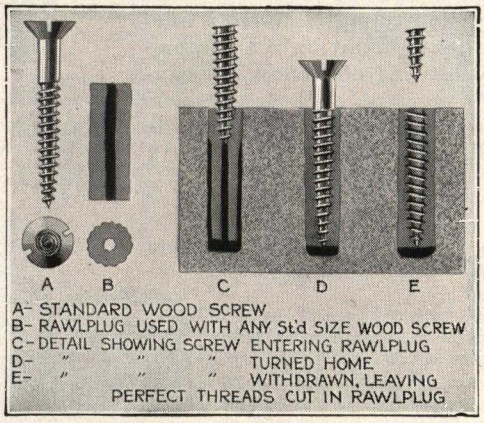
The screw entering the Rawlplug automatically threads it, which permits removal and replacement of screw as often as desired without stripping the threads so formed. The screw cannot be withdrawn by direct or indirect pull.

Rawlplugs require only a small hole. This saves much installation time and assures a neat job. The Rawlplug is invisible when in position, as the diameter of hole and Rawlplug is smaller than the head of the screw.

Due to their composition, Rawlplugs resist and absorb shocks. They cannot work loose, slip, sheer or lose their vise-like grip.

When properly inserted the Rawlplug will develop the entire strength of the screw or of the surrounding material, such as concrete, brick, glazed tile, hollow tile, cement, stone, slate, marble, plaster, glass, hard rubber, gypsum block, wall-board, terra cotta, composition walls and floors, wood and metal.

There is a Rawlplug for every size of screw from the smallest wood screw to the big 5/8-inch lag screw.



Application of Rawlplug

Rawlplug Price List

Prices of RAWLPLUGS per Hundred (F.O.B. nearest Branch)

In ordering specify No. (Size) and Length of Rawlplug (Rawlplug need only be as long as threaded part of screw).

	Length of Rawlplug—Inches								
	5/8	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2
Sizes Nos.	No. $	No. $	No. $	No. $	No. $	No. $	No. $	No. $	No. $
6-14 inclusive. Packed 100 to a box.	6-1.25 8-1.50	6-1.30 8-1.60	6-1.45 8-1.80	.....	.....	8-2.20	.....	.....	.....
	.....	10-1.80	10-2.05	10-2.30	10-2.55	.....	.....	.....	.....
	.....	12-2.20	12-2.45	12-2.70	12-2.95	12- 3.45	.....	.....	.....
	.....	.....	14-2.90	14-3.20	14-3.50	14- 4.10	.....	.....	.....
Sizes Nos. 16 - 20. Packed 50 to a box....	.....	.....	16-3.30 20-4.90	.....	16-4.10 20-5.90	16- 4.90 20- 6.90	.....	.....	.....
Lag Screw sizes Nos. 3/8-5/8 inclusive. Packed 25 to a box	For 1/4" Lag Screw use No. 14 or No. 16				3/8-6.50	3/8- 7.50	3/8- 8.50	3/8- 9.50	.....
					7/16-7.00	7/16- 8.50	7/16-10.00	7/16-11.50	.....
	For 5/16" Lag Screw use No. 20				.....	1/2-10.00	1/2-11.50	1/2-13.00	.....
					.....	.....	5/8-13.50	5/8-15.00	5/8-16.50

SPECIAL SIZES OR LENGTHS — Prices quoted upon request for any size and length not shown above.

STANDARD PACKAGE—Contains one dozen boxes of Rawlplugs of same size and length, or one dozen Rawldrills or Holders of same size.

Outfits

Rawlplug Contractors Outfit $20.00

Packed in Heavy Gage Steel Mechanic's Tool Box

Made up especially for Electrical and Plumbing Contractors, containing 450 of the sizes of Rawlplugs most popular with these trades (Nos. 8, 10, 12, 14, 3/8 and 1/2). It also includes 14 of the corresponding sizes of Rawldrills, one holder, drift pins, Rawlplug and screw gage. (List price of contents, $24.36.)

Rawlplug Household Outfit, 50c Each

A neat tin box containing No. 8 Rawlplugs, Nickel Plated Screws, Screw Eyes, Screw Hooks and special Rawldrilll and Tool holder. Packed 12 in attractive counter display carton.

Rawlplug, Rawldrill and Toolholder Size Data

Rawlplug No. (Size)	Use with Screw No.	Diameter Drill Required	Rawldrill No. (Not Diameter)	Use with Toolholder No.	Size Twist Drill
6	5-6	5/32"	6	8	5/32"
8	7-8	11/64"	8		No. 15
			8 Special*		
10	9-10	3/16"	10	14	No. 10
12	11-12	1/4"	12		1/4"
14	14 Or 1/4"	9/32"	14		9/32"
16	16 lag screw	5/16"	16	20	5/16"
20	20 or 5/16" lag screw	3/8"	20		3/8"

*Adaptable to fit No. 14 Toolholder

LAG SCREW SIZES

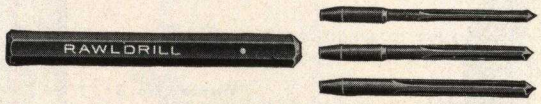
3/8	3/8"	7/16"	For 1/4" lag screw use No. 14 or No. 16 Rawlplug For 5/16" lag screw use No. 20 Rawlplug
7/16	7/16"	1/2"	
1/2	1/2"	5/8"	
5/8	5/8"	3/4"	

RAWLDRILLS

REG. U.S. PAT. OFF.

3 Point—Easily Sharpened

Rawldrills are the first radically different masonry drills. They are **three pointed**—can be sharpened or dressed on any grinding wheel. Parallel sides maintain cutting diameter—they cut much faster and last longer than ordinary drills. The smaller sizes, 5/32-inch to 3/8-inch (No. 20) inclusive, are made as drill points for use in hand holders—from 7/16-inch to 1 1/2-inch they have either a forged integral grip or taper shank for power hammers. In the smaller sizes (up to 3/8-inch) they correspond to the diameter of Rawlplugs and are sized accordingly.



RAWLDRILL Bits and Holders

Machine Type (Symbol M/T)

Size	6	8*	10	12	14	16	20	
Diameter, inches	5/32	11/64	3/16	1/4	9/32	5/16	3/8	7/16
Drills, per doz.	$3.60	$3.60	$4.20	$4.80	$5.40	$6.60	$7.80	$11.40
Tool Holders, per doz.	$9.00		$9.00			$12.00		
Drill Ejectors, $1.20 per doz.								

*Special No. 8 Rawldrill adaptable to fit No. 14 Tool Holder, $4.80 per doz.

Forged Rawldrills—Price List per Dozen

Actual Diameter Drill Inches	Standard Type (Symbol S/T) For Hand Drilling — Length Over All					Taper Shank (Symbol T/S) For Power Hammers — Length Over All			
	9"	10"	12"	18"	24"	6"	12"	18"	24"
3/8	$12.00	.....	.....	.....	.....	$ 8.40	.....	.....	.....
7/16	.....	$12.00	.....	$18.00	$25.20	8.40	$ 9.60	.....	.....
1/2	.....	12.00	.....	18.00	25.20	9.00	10.20	.....	.....
9/16	.....	.....	$12.00	.....	.....	10.20	.....	.....	.....
5/8	.....	.....	12.00	21.00	28.80	10.20	13.80	$24.00	.....
11/16	.....	.....	13.80	.....	.....	13.80	.....	.....	.....
3/4	.....	.....	13.80	22.80	30.00	13.80	15.60	26.40	$33.00
13/16	.....	.....	15.60	.....	.....	17.40	.....	.....	.....
7/8	.....	.....	15.60	24.00	32.40	17.40	18.60	28.20	36.00
1	.....	.....	16.80	25.80	33.60	17.40	19.20	33.00	39.00
1 1/8	.....	.....	19.80	26.40	36.00	24.00	27.00	36.00	42.00
1 1/4	.....	.....	26.40	34.20	42.00	.....	33.00	48.00	54.00
1 3/8	.....	.....	32.40	.....	.....	.....	42.00	.....	.....
1 1/2	.....	.....	32.40	40.80	48.00	.....	45.60	54.00	60.00
1 5/8	.....	.....	36.00	44.40	.....	.....	48.00	60.00	.....

RAWLCHUCKS

Made of nickel steel accurately machined and heat treated to withstand severe service. In ordering be sure to specify make of hammer and size, and if for pneumatic chipping hammer whether it has round or hexagon barrel. Net Price complete with drift key, $3.50. Pneumatic hammer type Net $5.00, Extra pin $.65 each.

Founded 1890

W. A. RUSSELL & COMPANY NEW YORK, N. Y.

Grand Central Terminal Bldg.

Branches

Chicago Detroit Boston Denver Minneapolis Baltimore Philadelphia

"WARCO"

Trade Mark Registered

Automatic Air & Vacuum

VALVES

The seven Warco Valves constitute a standardized line. A line which our 42 years' experience in this particular field has shown to fill every air and vacuum valve need.

Unusually large air port, assuring rapid and complete discharge of air. Positive separation of air and condensate.

All bases heavily wrought or cast brass. All outer shells extra heavy gauge, hard-drawn sheet brass. Every valve exhaustively tested for each of its functions before permitted to enter our stock. Every valve guaranteed, when properly installed and operated to give five full years of satisfactory service.

WARCO VACUUM VALVES, in addition to venting the air, prevent it from returning through the air valve vent. They will convert a one-pipe steam system, without any other special equipment, into a successful vacuum system, with marked increase of heating efficiency and saving of fuel.

WARCO Air and Vacuum Valves cost less than any other high grade air valves.



"Warco" No. 6 Vacuum

⅜-inch Bottom-Outlet Quick Vent for Mains. Contains four Graduated Vent Ports. (Guaranteed to close against water).

List Price $15.00



"Warco" No. 5

⅜ - inch Bottom - Outlet Quick Vent for Mains. Contains Four Graduated Vent Ports. (Guaranteed to close against water.)

List Price $11.00



"Warco" No. 2 Vacuum

⅛ - inch Side-Outlet for Radiators.

List Price $4.50



"Warco" No. 4

¾-inch Bottom-Outlet Quick Vent for Mains. (Not guaranteed to close against water.)

List Price $4.25



"Warco" No. 1

⅛-inch Side Outlet for Radiators.

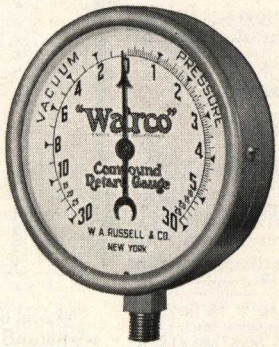
List Price $1.65



"Warco" No. 3V Vacuum

¼-inch Bottom-Outlet for Mains, Coils and Risers.

List Price $6.00



"Warco" Compound Retard Pressure and Vacuum Gauge

4½-inch Diameter.

List Price $8.00



"Warco" No. 3

¼ - inch Bottom Outlet for Mains, Coils and Risers.

List Price $3.00

SARCO COMPANY, INC. NEW YORK, N. Y.

183 Madison Avenue

Branches in
All Principal Cities

Sarco Canada Limited
Federal Bldg., Toronto, Ont., Canada

MANUFACTURERS OF STEAM SPECIALTIES

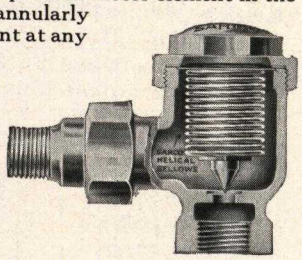
Products:

Sarco Radiator Traps, Packless Inlet Valves, Air Eliminators, Alternating Receivers, Float Traps, Temperature Regulators, Compound Gauges, Damper Regulators and Self-Cleaning Strainers

Sarco Type E Radiator Trap

The Sarco Radiator Trap is operated by the expansion and contraction of a very sensitive liquid. Its positive action keeps radiators thoroughly drained, preventing air binding, and increasing the heating value of every pound of coal.

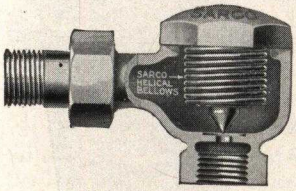
The life of the helical corrugated expansion motor element in the Sarco exceeds many times that of annularly corrugated tubes because its movement at any point of the tube is so slight that it is hardly perceptible.



The Sarco can be shipped without elements so that when operating in a gravity system, all the scale and dirt can be washed out. The elements can then be easily dropped into place and the trap will function perfectly. Removing the elements does not affect the adjustment.

Brass castings have no defects and are exceptionally heavy. No danger of cracking or straining when connecting. Made in ½, ¾ and 1-inch sizes for vacuum, vapor and steam heating systems at pressures up to 25 pounds.

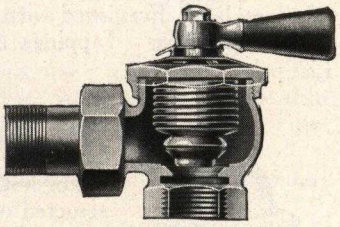
Sarco Type H Radiator Trap



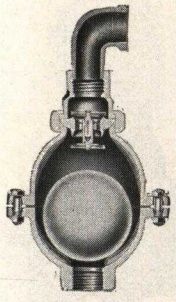
The Sarco Type H Radiator Trap is a companion to the Type E Trap. Designed for small heating units, it is used for living room, bedroom and bathroom radiation in apartments and hotels.

Sarco Packless Inlet Valve

The Sarco Packless Inlet Valve is made in sizes from ½ to 1½ inch for graduating or modulating the flow of steam to radiators.

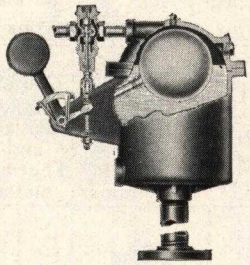


Sarco No. 11 Air Eliminator



The Sarco Air Eliminator vents air from the entire plant at one central point, in the basement.

The discharge orifice is protected by two separate check valves, operating independently in opposite directions. The outer valve serves to keep air from being drawn into the system at times when a vacuum is created by condensing steam. The inner valve is closed by the copper float in the event of water filling the eliminator. Has cast iron body, a copper float and brass valves, rubber surfaced to insure tightness.

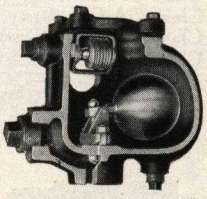


Sarco Alternating Receiver

The Sarco Alternating Receiver insures minimum operating pressure and, therefore, maximum economy. It keeps condensate flowing freely back to the boiler.

Sarco Float Traps

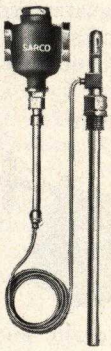
Sarco Float Traps are designed for the rapid removal of very hot condensate, which cannot be handled by thermostatic means alone.



The 1¼-inch FT-1 and the 2-inch FT-2 are designed for pressures up to 10 pounds.

The 1¼-inch FT-3 is designed for pressures up to 125 pounds.

Sarco TR-21 Temperature Regulator



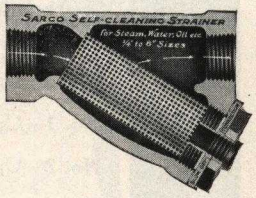
The Sarco Temperature Regulator is operated by an extremely sensitive liquid and is instantly responsive to the slightest fluctuation in the temperature of atmosphere or liquids. It requires no external operating means, such as compressed air, water or electricity.

Sarco Regulators are substantially constructed. The valve is fully balanced and packless. Suitable for steam, water and gas, and can also be had in the "reverse acting" type, to open with rise of temperature. A 6-foot connecting tubing between the thermostat and valve is furnished with the regulator, but when needed, longer tubings are supplied at slight additional cost.

The TR-21 is designed for hot water control tanks and boilers, and has an adjustable range of 20° F.; 10° above and 10° below the setting point.

Sarco Self-Cleaning Strainer

The Sarco Strainer is suitable for use on steam, gas, water, oil, etc. It has a cast iron body with perforated cylinder placed at such an angle as to offer the minimum obstruction to the flow of gas or liquid, but allowing ample cleaning space. The standard screens are made of perforated brass, but, where specified, monel or other metal screens can be supplied to practically any specification.



Can be placed in horizontal or vertical lines or at any angle, and a blow-off connection permits the strainer being cleaned instantly, merely by opening a valve.

Made in sizes from ½ to 8 inches.

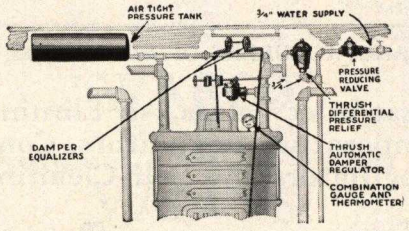
Write for Catalog MA-45

H. A. THRUSH & COMPANY PERU, INDIANA

Main Office and Factory—21 East River Street

Thrush System of Hot Water Heating

Thrush System of Hot Water Heating provides an automatically controlled heating plant, operating with greater efficiency at lower fuel cost. Circulation is increased, resulting in even and quick heat distribution. Installation cost is reduced because smaller pipe and valve sizes are required when Thrush System is used.



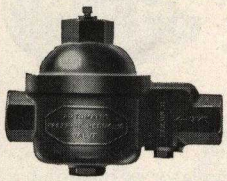
Illustrating Class AA System

Thrush System may be installed with either old or new Hot Water Heating Plants. It converts a gravity type job into a Closed System with accelerated Circulation and increased heat transmission. Made in several types and sizes to fit any installation.

List Prices

Thrush Systems	Special Pressure Tank	¾-inch Differential Pressure Relief Valve	No. 12 ¾-inch Pressure Reducing Valve with Strainer	Combination Gauge and Thermometer	Automatic Damper Regulator	Standard Dual Control Unit	Master Dual Control Unit	No. 0 Up to 350 Sq. Ft. of Radiation	No. 1 Up to 700 Sq. Ft. of Radiation	No. 2 Up to 1200 Sq. Ft. of Radiation	No. 3 Up to 2000 Sq. Ft. of Radiation
Class AA Consists of	1	1	1	1	1	.....	.....	$70.00	$74.00	$78.00	$82.00
Class A Consists of	1	1	.....	1	1	.....	.....	58.00	62.00	66.00	70.00
Class BB Consists of	1	1	1	1	.....	.....	.....	52.00	56.00	60.00	64.00
Class B Consists of	1	1	.....	1	.....	.....	.....	40.00	44.00	48.00	52.00
Class DD Consists of	1	1	1	.....	.....	.....	.....	48.00	52.00	56.00	60.00
Class D Consists of	1	1	.....	.....	.....	.....	.....	36.00	40.00	44.00	48.00
Class CA Consists of	1	.....	.....	1	1	1	.....	59.00	63.00	.....	.....
Class CA Consists of	1	.....	.....	1	1	.....	1	62.00	66.00	70.00	.....
Class CC Consists of	1	.....	.....	1	.....	1	.....	41.00	45.00	.....	.....
Class CC Consists of	1	.....	.....	1	.....	.....	1	44.00	48.00	52.00	.....

No. 12—Automatic Pressure Reducing Valve



An automatic pressure reducing and filling valve with strainer, for automatically maintaining proper supply of water in a hot water heating system. Has larger waterways and will fill more rapidly than ½" size. All working parts made of brass. Fully guaranteed against defects in workmanship and material. Standard pressure setting, 12 lbs. Suitable for 1, 2, or 3 story buildings. Tappings ¾". List price, $12.00.

Thrush Automatic Damper Regulator



For hot water heating and hot water supply boilers. Automatically operates draft and check dampers on temperature change of water in boiler. Thermostatic member easily accessible and can be removed without draining boiler. Furnished complete with rod, weights, equalizers, chain, and clips. Easily installed. Sensitive in operation. Tapping 1½". List price $18.00.



Thrush Pressure Tanks

Are made of copper bearing steel and are air tight.

	List Price
No. 0—Up to 350 sq. ft. of radiation (18 gallons) 12"x36"	**$20.00**
No. 1—Up to 700 sq. ft. of radiation (24 gallons) 12"x48"	**24.00**
No. 2—Up to 1200 sq. ft. of radiation (30 gallons) 12"x60"	**28.00**
No. 3—Up to 2000 sq. ft. of radiation (40 gallons) 14"x60"	**32.00**

NOTE:—For buildings higher than two stories, use one size larger PRESSURE TANK. For jobs larger than 2000 sq. ft. of radiation add additional tanks of proper capacity. Tapping ½".

Thrush Differential Pressure Relief Valve

Generally conceded to be the safest and most dependable Relief Valve made for hot water heating systems. Large metal diaphragm actuates movement of free working valve member. Submerged seat prevents corrosion and sticking. Is set to open at approximately 28 lbs. which is suitable maximum relief pressure for 1, 2, and 3 story buildings. Special limit adjustment up to 35 lbs. Unconditionally guaranteed when properly installed. Furnished with all Thrush Systems. Tappings ¾". List price $16.00.





No. 40 Relief Valve

For hot water heating systems. Constructed of cast iron with brass working parts. Diaphragm made of nickel silver metal. Adjustable for relieving pressures up to 35 lbs. Tappings ½". List price $6.00.

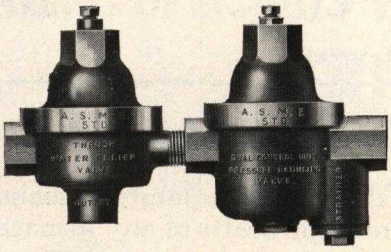
No. 10 Automatic Pressure Reducing Valve



For maintaining low pressures in small supply lines. Standard pressure setting 12 lbs. but may be adjusted up to a 30 lb. maximum delivery pressure. Made of brass. Tappings ½". List price $10.00.

All Thrush Relief Valves are approved and listed as Standard by the Underwriter's Laboratories and comply with A. S. M. E. Code.

Thrush Automatic Dual Control Units



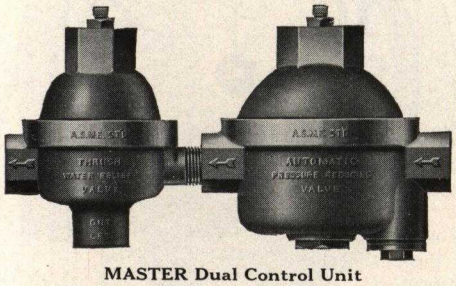
STANDARD Dual Control Unit

Thrush Dual Control Unit, consisting of a pressure reducing valve with strainer and pressure relief valve, provides a low priced and safe way of automatically controlling a Hot Water Heating Plant under pressure. Assures greater efficiency at lower fuel cost, and circulation is increased, resulting in even and quick heat distribution.

Thrush Dual Control Units can be installed on either old or new boilers with the assurance of automatic maintenance of proper water supply and automatic relief of excessive pressure.

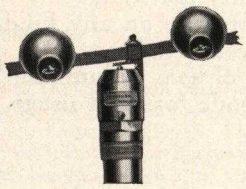
The **Standard** Dual Control Unit is made of red brass. Relief valve has no restricted openings or guide wings below the seat. Valve movement is actuated by nickel-silver metal diaphragm. Reducing valve has removable strainer. Tappings ½-inch. List price, $17.00.

The **Master** Dual Control Unit is larger than the Standard Unit. It has larger waterways for quicker filling. Valve bodies and working parts are made of red brass. Removable strainer for cleaning is an integral part of the reducing valve. Tappings ½-inch. List price, $20.00.



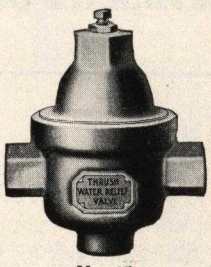
MASTER Dual Control Unit

Thrush Junior Damper Regulator



Designed for hot water heating and hot water supply boilers. Automatically operates draft and check dampers on temperature change of water in boiler. Thermostatic unit made up of 12 bronze diaphragms. Neat in appearance and very sensitive in operation. Furnished complete with lever, adjustable round ball weights, equalizers, chain, and clips. Tapping 2-inch. List price, $16.00.

Domestic Pressure Reducing and Water Relief Valves



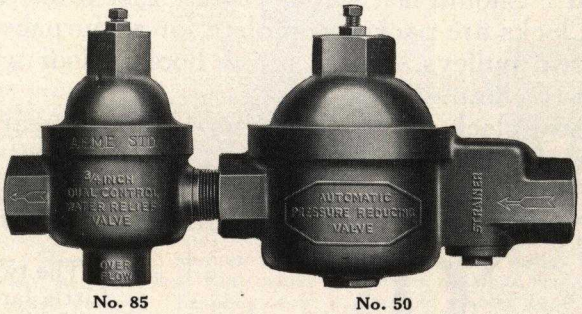
No. 45

No. 45 Relief Valve for domestic water supply systems. Recommended for relieving excessive pressure in hot water supply boiler, range boiler, gas storage heater. Made of cast iron with brass working parts. Adjustable for relieving pressure from 35 to 100 pounds. Tappings ½-inch. List price, $6.00.



No. 55

No. 55 Relief Valve for domestic water supply systems carrying high pressures. Suitable for same uses as No. 45 but is larger and stronger. Adjustable for relieving pressures from 75 to 125 pounds. Tappings, ¾-inch. List price, $8.00.



No. 85 No. 50

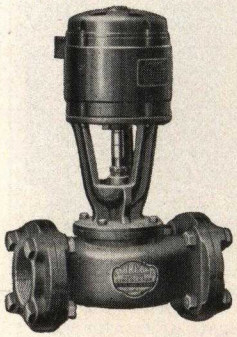
Shown above is No. 50 Pressure Reducing Valve with strainer, and No. 85 Pressure Relief Valve assembled into a unit for domestic water supply systems. Tappings ¾-inch. Unit list price, $20.00.

No. 85 Relief Valve for domestic water supply lines. Is made of cast iron with brass working parts. Standard factory pressure relief setting is 85 pounds, but can be adjusted to relieve at any pressure up to 125 pounds. Tappings ¾-inch. List price, $8.00.

No. 50 Pressure Reducing Valve with strainer, for reducing city water pressure into residential service lines. Will control main pressures of up to 200 pounds. Can be adjusted to maintain delivery pressures of 100 pounds down. Factory setting is for a delivery pressure of 45 pounds. Tappings ¾-inch. List price, $12.00.

All Thrush Relief Valves are approved and listed as Standard by the Underwriters' Laboratories and comply with A.S.M.E. Code

Thrush Electric Water Circulators



Nos. 22 and 23

Motor driven water circulating pumps for large and small hot water heating and domestic water supply systems. Especially valuable with oil and gas fired boilers, and in hot water heating plants in greenhouses, apartments, garages, stores, and sick jobs where circulation is sluggish or where there are long pipe runs. Can be installed in any open or closed hot water heating system, old or new. Essential with hot water heating systems having extended surface radiation or unit heaters for most efficient results. Accelerates circulation, maintains higher water temperature at radiators, and reduces heat loss in transmission. Shipped as a unit, ready to install.

No.	Tapping	Motor H. P.	Gallons Delivery Per Minute	Radiation Capacity Sq. Ft.	Shipping Weight Pounds	Width Inches	Height Top to Bottom Inches	Length End to End Inches	List Price
15	1½-inch Screwed	1–10	15	1,000	48	7½	17	7	$ 90.00
22	2 -inch Flanged	⅛	30	2,500	80	7½	19½	9⅜	130.00
23	3 -inch Flanged	¼	70	6,000	100	8½	21¼	13¾	150.00

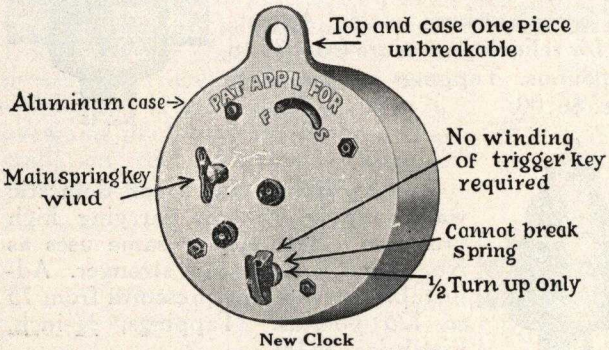


No. 15

TILLERY'S LITTLE JANITOR CLOCK CO., NEWARK, N. J.

55 Orchard Street

Tillery's Little Janitor Clocks



New Clock

Tillery's Little Janitor Clocks will automatically operate the drafts of any furnace: steam, hot water, hot air, or pipeless.

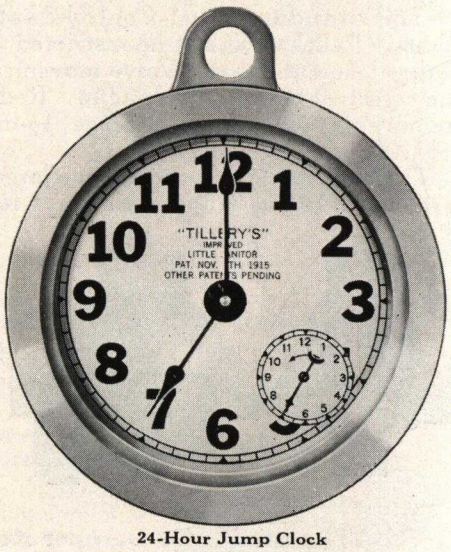
The works in the clock are made of the very best material and workmanship—strongly constructed to withstand strain of weights.

Has free action, never fails.

The New Tillery's Little Janitor Clock is made of heavy aluminum. Sturdy construction. Dust proof and rust proof. Guaranteed for one year. Should last 4 to 5 years. List price, $7.00.

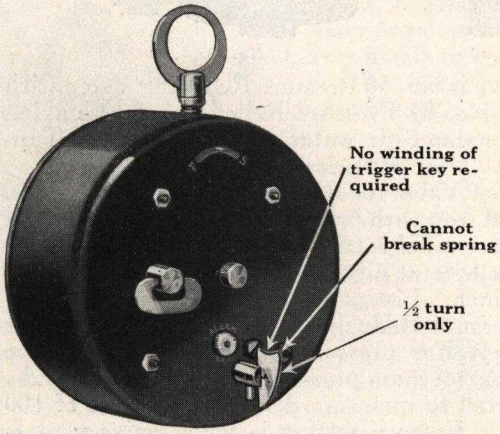
Clocks are packed complete for all furnaces. Each consists of two pulleys, spring, screw hooks, door wedge and twenty feet of chain.

Any clock found defective within a year will be replaced free of charge.



24-Hour Jump Clock

Twenty-Four Hour Jump Little Janitor Clock

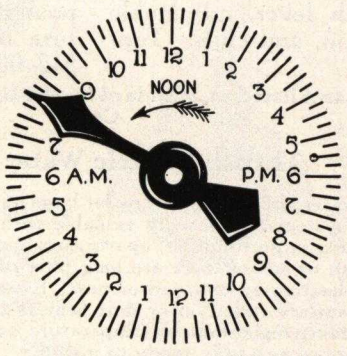


The twenty-four hour jump Little Janitor Clock can be set at 5:00 or 5:30 P. M. Will automatically release drafts of furnaces or electric circuits on or off any time desired from 6:00 P. M. to 6:00 P. M. next day, twenty-four hour setting. Will operate on any kind of boiler, furnaces, blower or oil systems also lever switches.

Case is made of heavy aluminum and works of the very best, accurate in time, made for hard usage. Guaranteed for one year. List price, $8.00.

Clock Will Jump From One Hour to Twenty-Four Hours

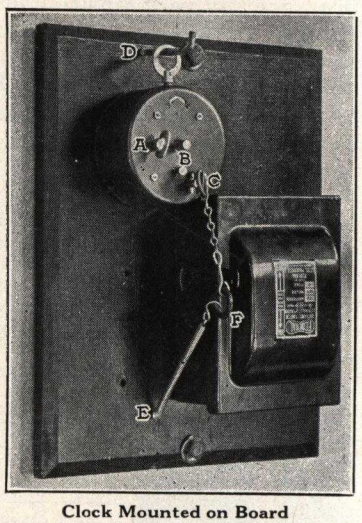
Close your store or factory 5 or 5:30 P. M., set clock 6 or 7 A. M., and your furnace will have the heat up when place is opened the next morning.



The Little Janitor does the work on Federal or Square D Switches also any lever switch

Used on stokers, blower systems, thermostats (without clock control), electric signs and window lights. Also for many electrical purposes to throw on or cut off current. Guaranteed to function for one year by Manufacturer.

List price, $8.00, consisting of clock, switch, board, spring, bracket and chain —complete for wiring.



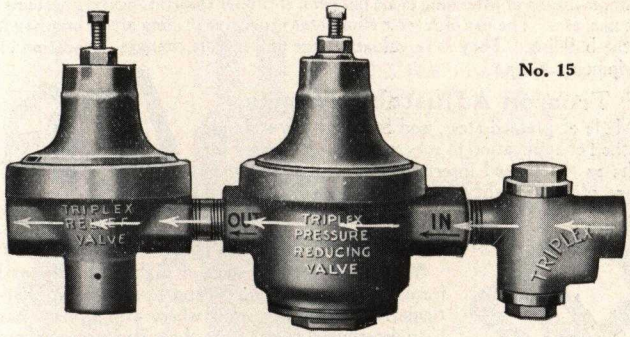
Clock Mounted on Board

All Clocks guaranteed for one year

TRIPLEX HEATING SPECIALTY CO., INC. PERU, INDIANA

TRIPLEX

Hot Water Heating Specialties



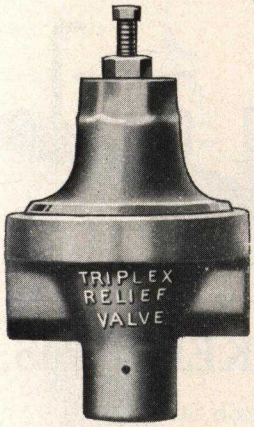
No. 15

Triplex Tankless Control Units

TRIPLEX Tankless Control Units are of sturdy and serviceable construction, being made of cast iron, the metal proven most durable, Udylited, preventing rust, and contain brass working parts. The Pressure Reducing Valve of this Unit is a marvel, having a working range from city water pressure to nothing. Relief Valves seat under water and positively will not stick. The Strainer embodies a Check Valve which prevents water syphoning from the system. The average system is filled directly through the TRIPLEX Tankless Unit in 15 to 30 minutes without the aid of by-pass. The foregoing features are found only in Superior TRIPLEX TANKLESS UNITS.

No. 15, consists of Relief Valve, Pressure Reducing Valve, and Check Valve and Strainer.
No. 14, consists of Relief Valve, and Pressure Reducing Valve.
No. 7, consists of No. 15 Unit, and a Safe-T Boiler Plug.

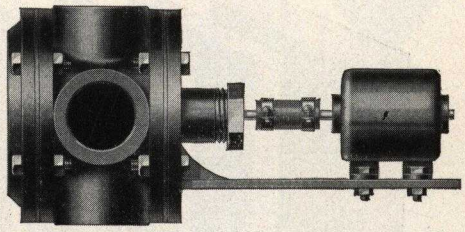
Triplex Relief Valves



All TRIPLEX Relief Valves are constructed of the always dependable Udylited cast iron and have working parts of brass. They are of the multiple opening type, very sensitive, and positively quiet when operating. TRIPLEX Relief Valves seat under water which prevents corrosion and sticking of the seats. The ½" size Valves have extra large relief capacities, and the ¾" size Valves relieve in proportion. All TRIPLEX Relief Valves are guaranteed to give absolute satisfaction.

No. 9—¾" Relief Valve, 28 to 35 lbs.
No. 16—½" Relief Valve, to 35 lbs.
No. 17—½" Domestic Relief Valve, 40–100lbs.
No. 21—½" Tank System Special to 35 lbs.

Triplex Aqualators



TRIPLEX Aqualators are electric circulating pumps designed by competent engineers to quickly and noiselessly step up the circulation of a hot water heating system. They are equipped with General Electric totally enclosed rubber suspended motors, being thoroughly insulated with sheet rubber and a wood base. There is no stuffing box, its place has been taken by a modern patented Seal Ring which eliminates constant leaks and excessive power. The body is of a manifold header type with patented deflector to prevent bull heading or short circuits. Every return can be piped independently into the Aqualator. On and off Gas and Oil Burner installations should be piped directly through the Aqualator for the highest efficiency. Any size Aqualator is very quiet in operation, and there are no noise or shock absorbing devices necessary when TRIPLEX Aqualators are used.

Sizes, Capacities and Weights

No.	Discharge Inches	Intakes	Gallons Per Minute	Radiation Capacity Sq. Ft.	Weight Lbs.
23	1¼	2–1"	15	1000	49
24	1½	2–1" & 2–1¼"	20	1500	52
26	2	2–1" & 2–1½"	35	2500	64
27	3	2–1¼" & 2–2"	70	5000	78
28	6	4–3"	120	10000	150

Triplex Tank Systems

TRIPLEX Tank Systems are absolutely reliable. The TRIPLEX Company was the originator of the ½" Tank System. The ½" size System is adequate where only one Tank is required. The ¾" Tank System can also be furnished upon request. The No. 21 Relief Valve is specially constructed for ½" type Systems. You will find TRIPLEX Tanks of a much heavier gauge steel and come wrapped in corrugated paper to protect their finish till they are delivered on the job.

List A Systems

Consists of Copper Bearing Steel Tank, Relief Valve, Gauge, Boiler Thermometer, and Water Temperature Regulator.

No. 101—½" 0-400 sq. ft. radiation.
No. 102—½" 400-700 sq. ft. radiation.
No. 103—½" 700-1200 sq. ft. radiation.
No. 104—½" 1200-2000 sq. ft. radiation.

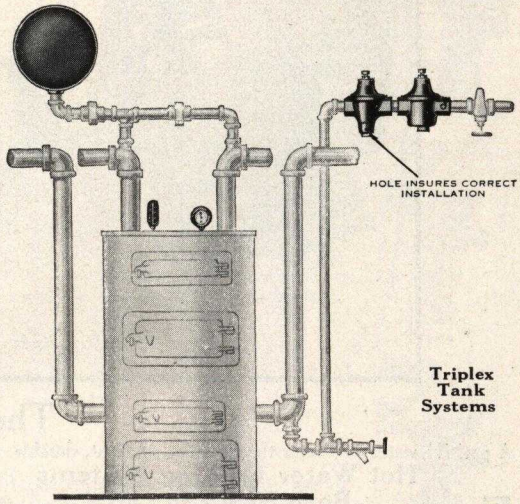
Type AA Systems consist of the same as list A but have a Pressure Reducing Valve included.

List B Systems

Consists of Copper Bearing Steel Tank, Relief Valve, Gauge, and Boiler Thermometer.

No. 301—½" 0-400 sq. ft. radiation.
No. 302—½" 400-700 sq. ft. radiation.
No. 303—½" 700-1200 sq. ft. radiation.
No. 304—½" 1200-2000 sq. ft. radiation.

Type BB Systems consist of the same as list B but have a Pressure Reducing Valve included.



Triplex Tank Systems

Notice: The latest illustrated Price List together with extreme discounts may be had on application.

Write for detailed information concerning the complete line of hot water heating specialties not illustrated. You can benefit from the unlimited experience of TRIPLEX engineers in having piping layouts prepared gratis. Your heating problems are our problems. Prices subject to change without notice. The newest item added to this modern line of products is the TRIPLEX Breakable Safe-T Boiler Plug. It is accurate, reliable, and fool proof and the last word in boiler protection.

TRUSCON STEEL COMPANY YOUNGSTOWN, OHIO

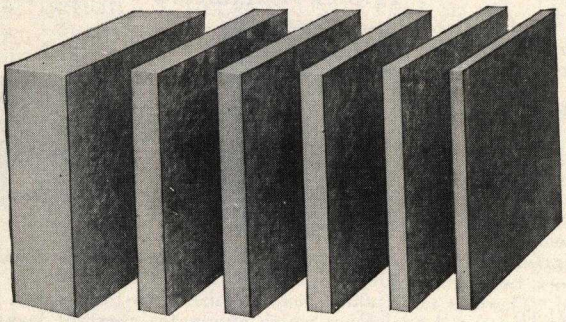
Warehouses and Sales Offices in Principal Cities

Ferroclad Insulation Panels

During the past few years the practical use of insulation has increased manyfold, but in most cases, the insulation lacked the structural strength and tough surface to withstand wear and tear.

The Truscon Steel Company has given great impetus to a much widened application of insulation as a result of the development of FERROCLAD. This product consists of a core of commercial insulation permanently sealed between metal sheets. The full heat, cold and sound retarding properties of the insulating material are utilized, while its comparatively low structural strength is greatly increased by the tough outer steel, or other metal, covering.

FERROCLAD may also be manufactured with cores of rigid pressed wood board, plywood, and other materials. The cores may be any desired thickness—the metal surfaces may be various kinds of steel, aluminum, monel, copper or other non-ferreous sheets. Where temperatures range between 300 and 600 degrees, a core of high heat resisting material it provided. It is widely used for radiator covers, ducts, dryers, buildings, jackets of heating units and other purposes. Write for samples, catalog and details.

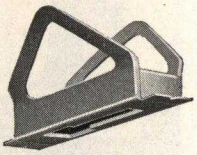


Truscon Pressed Steel Inserts

Inserts built into the concrete and masonry during construction provide a simple means of attaching shaft hangers, sprinkler systems, heating systems, fixtures, etc. The use of inserts eliminates expensive drilling after completion of the building. They save valuable time and permit changes in location of equipment.

Truscon Adjustable Inserts

Made of pressed steel, and have the same simple method of application to concrete and adjustment for bolts as the slotted inserts, but without their wide range of adjustability. Made to carry ½, ⅝ and ¾-inch bolts.



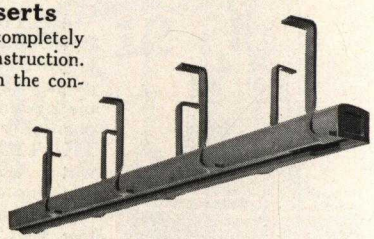


Truscon Tapped Inserts

Made from pressed steel of highest quality and furnished tapped for ½, ⅝ and ¾-inch bolts. Particularly adapted for work where arrangement has been determined before start of construction. Where required, this type of insert can be furnished tapped for ⅜ or ½-inch pipes as well as for ⅜-inch standard bolts.

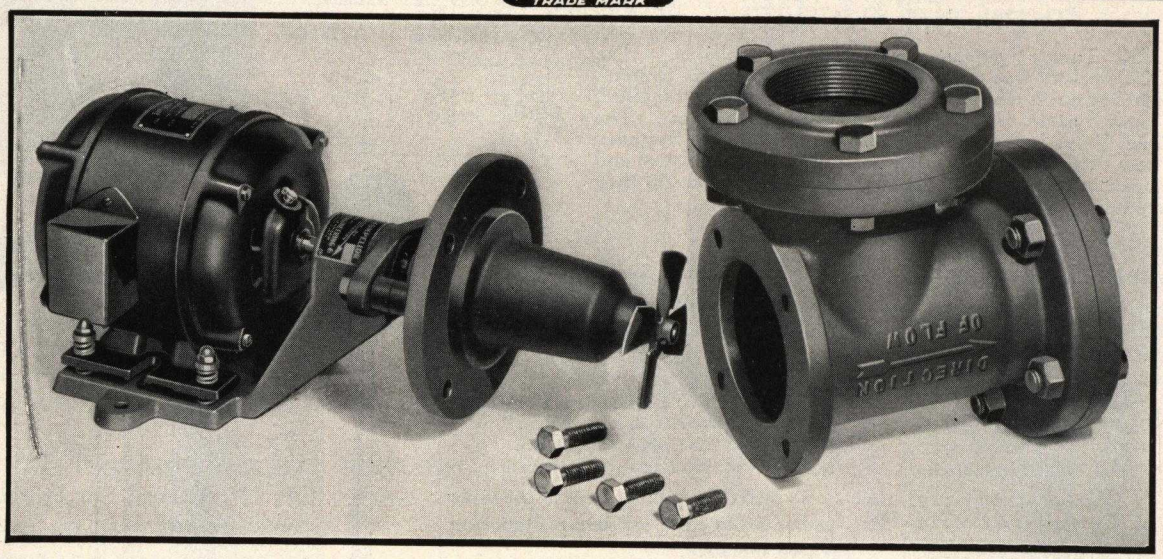
Truscon Slotted Inserts

Attached to the forms and are completely embedded in the concrete construction. Only the narrow slot flush with the concrete is seen in the completed work. The bolt can be moved along this slot to any location, allowing wide variation in position. The anchors are integral with the insert and occur every 6 inches on each side.



STERLING ENGINEERING CO. MILWAUKEE, WIS.

Main Office and Factory — Sterlco TRADE MARK — 3736 North Holton Street



The Sterling Compeller

A positive water circulator that is quiet, efficient, durable, and requires a minimum of attention.

For **Hot Water Heating Systems Both New and Old** — Provides quick, uniform heating, 20% average fuel saving, smaller pipes, and radiators; corrects sick jobs; and does not interfere with gravity circulation.

Domestic Hot Water and Ice Water Supply Systems — Provides a constant supply of hot water to every fixture; increases capacity of hot water heater; saves fuel and head room, as tank may be located at same level or below heater.

Made in all sizes from 1½-inch to 12-inch pipe connections. For water pressures up to 125 lbs. Type S—for low friction heads. Type H—for high friction heads.

TRYCO PRODUCTS, INC. WESTFIELD, MASS.

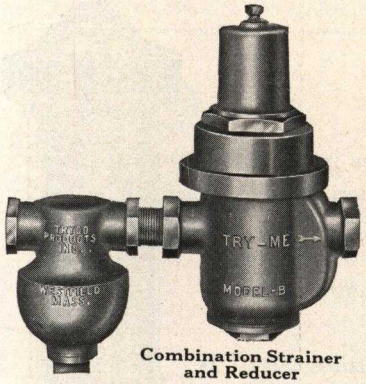
Representatives:

Detroit, Mich., Plath-Fittinger Co., 1900 E. Jefferson Ave.

Syracuse, N. Y., Charles H. Shepard, 788 Ostrom Ave.

Toronto, Ont., Can., Bashlin-Canada Co., 26 Verral Ave.

TRY-ME PRODUCTS



Combination Strainer and Reducer

Try-Me Pressure Reducer and Strainer

The Try-Me Pressure Reducer is for use on water or air services where delivery pressure lower than initial pressure is desired. While the Reducer functions without Strainer, installing one prevents the necessity of renewing grit cut seats.

The Reducer is made of bronze with brass pressure screw. Each Reducer reduces from 250 pounds to 1 pound. Gives maximum volume at given pressure, will not creep, can be used as emergency shut-off and is easily repaired.

Try-Me Reducer Model B here illustrated is the latest improved model equipped with patented plunger-diaphragm, is leak-proof and can be furnished in sizes from ¼ to 1½ inches only. Former Model A will be furnished in 2 and 2½-inch sizes.

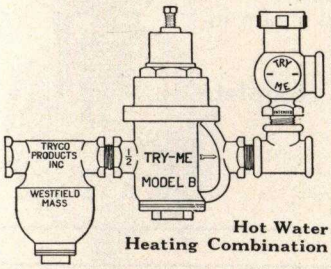


Strainer

Try-Me Strainer

For use on water, air, gas, kerosene and similar installations to prevent entrance of damaging foreign matter.

A Try-Me Strainer reduces maintenance cost by preventing injury to fixtures and pipes from dirt, grit and rust. It will insure continuous, accurate service.



Hot Water Heating Combination

List Prices

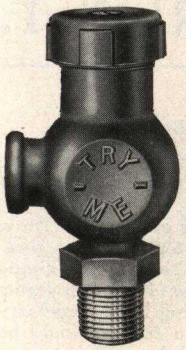
Model	B							A	
Size.....Inches	¼*	⅜	½	¾	1	1¼	1½	2	2½
Combination	$11.75	$11.75	$11.75	$15.00	$19.75	$27.00	$38.00	$52.00	$72.50
Reducer	9.00	9.00	9.00	12.00	14.40	18.00	21.60	29.00	40.00
Strainer	3.00	3.00	3.00	3.50	6.00	10.00	17.50	25.00	35.00

*Bushed from ½" or ⅜".

Try-Me Hot Water Heating Combination

For use on hot water heating systems as an automatic pressure control. This combination consisting of a bronze Model B Reducer, Strainer, and Relief Valve, all ½-inch size, coupled together with brass nipples and tee as illustrated, is applicable to old or new installations. It eliminates the tank in attic, basement or garage.

List Price.....$17.50



Relief Valve

Try-Me Pressure Relief Valve

For use on water or air. Relieves pressure on range boilers, water fronts, hot water heating systems, air compressors, pressure tanks, pumps and similar devices. Has wide range up to 225 pounds. Can be easily set and sealed. Equipped with lubricated, non-sticking Jenkins seat, bronze spring and safety lock cap.

List Price—Either ½" or ¾".....$6.00

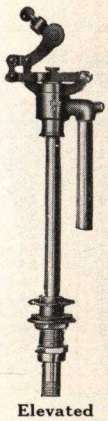


Bubbler Head

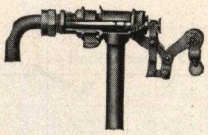
Try-Me Bubbler Head

For use on drinking fountains. It has an ¼-inch female inlet, a self-washing non-breakable top, and the flow can be adjusted.

List Price—Nickel finish.....$3.75 Chromium finish.....$4.00



Elevated



Top Supply



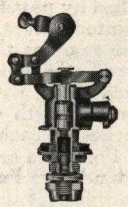
Bottom Supply

Try-Me Ballcocks

Try-Me Ballcocks have compound leverage which insures shutting off. Float rod can be adjusted without bending. A magazine permits use of pure rubber seat. Renewable hard metal bottom seat prevents erosion. Only one screw need be removed in renewing either seat. The Elevated type has a standard of ¼-inch, semi-annealed, brass pipe, insuring against cracking.

Try-Me Ballcocks can be used to replace any other make.

List Price, per dozen.....$48.00



Jiffy

Jiffy and U. T. Co. Ballcocks

Jiffy and U. T. Co. Ballcocks are made only in top and bottom supply models. They are of the same high quality as the Try-Me models, but of more simple construction, which makes possible the lower price.

List Price, per dozen—Jiffy.....$32.00 U. T. Co.....$30.00



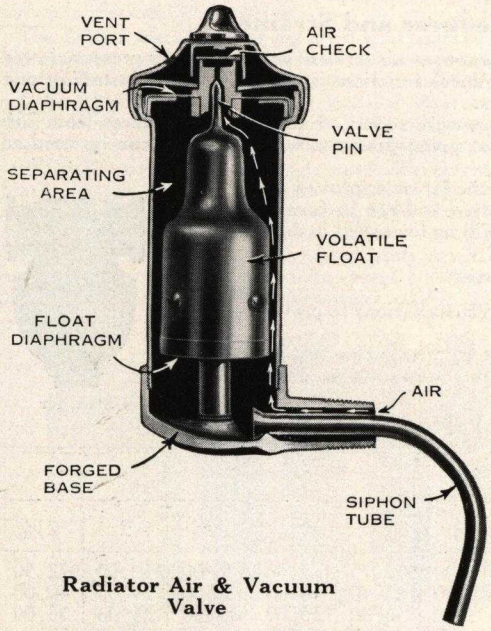
U. T. Co.

U. S. Air & Vacuum Valve Co. New Haven, Conn.

139 Pendleton Street

USAV Air and Vacuum Valve

The USAV Air and Vacuum Valve Saves One-Third on Fuel and Holds the Steam in Radiators for Several Hours After Drafts Are Off



Radiator Air & Vacuum Valve

Operation of Valve

Air is expelled as indicated by arrows in the illustration at the left. The air-check functions to release air and prevent its return, until a slight vacuum is formed; then the vacuum diaphragm which carries valve-seat body, flexes downward and maintains tight contact with float pin.

Natures law, "The Weight of the Atmosphere" is harnessed to hold a vacuum for long periods.

Equally effective for coal, oil or gas-fired steam installations.

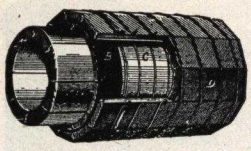
Write for further information and complete line.



Quick Vent Float Air & Vacuum

A. Wyckoff & Son Company Elmira, N. Y.

Wyckoff's Steam Pipe Casing



Cut shows casing before being coated with Montezuma asphalt and sawdust.

Wyckoff Improved Steam Pipe Casing is composed of selected and carefully inspected staves of Cypress. The two-inch staves for the inner shell are drawn together by heavy tension into the form of a tube and firmly bound with galvanized steel wire, wound spirally with extra wrappings at each end. Four layers, four inches wide, of Asphaltum packing is placed on each end of the casings. This material is drawn around the casing as tightly as possible and fastened. It is finished by putting on the outside another casing of one-inch Cypress jointed staves, which is bound with heavy galvanized steel wire, the same as the inner shell, thus making two casings of Cypress wood, the inner shell two inches thick, and the outer shell one inch thick, with a one-quarter-inch dead air space extending the entire length of the casing, between the shells, except the four inches on each end.

For pipes conveying steam where the pressure is more than five pounds, we line the covering with tin to intensify heat radiation and protect the pipe more efficiently. Where tin lined covering is used, the extra thickness of the inner Cypress shell will positively prevent collapsing, no matter how high the pressure. We make the covering in lengths of from four to eight feet, connected by tenon and socket joint which has to be driven together, making a watertight joint. For underground use the covering is coated with Montezuma Asphalt and rolled in sawdust which acts as a binder and prevents coating from being scraped off in transit. When used overhead, the coating is painted on outside with black asphaltum paint.

When ordering, give thickness of shell. The 3¼-inch shell casing should be used for all high steam pressure lines and for street mains. Give size of covering, size of pipe to be covered, and approximate steam pressure to be carried. State whether lines are in place and cannot be disconnected for slipping the regular covering over pipes, or whether lines are just being connected. State whether pipes convey hot water, low pressure steam, or high pressure steam. If many elbows and tees are used, send sketch giving measurements from center to center. We can then furnish covering in exact lengths ready to lay without any cutting being necessary on the ground. Guides to center steam pipe in casing should be used in order to keep the pipe from dragging on the coverings as it contracts and expands.

We also manufacture a 2-inch single shell stave casing which is sometimes used on return lines and high pressure lines when a lower priced covering is desired.

Inside Diameter of Covering Inches	For Covering	3¼-Inch Shell		2-Inch Shell	
		A	B	A	B
		Price Per Foot	Price Per Foot	Price Per Foot	Price Per Foot
2	1 -inch Steam Pipe	$0.50	$0.58	$0.28	$0.38
2½	1¼ or 1½-inch Steam Pipe	.58	.68	.34	.44
3	2 -inch Steam Pipe	.62	.74	.40	.50
4	2½-inch Steam Pipe	.66	.80	.44	.58
5	3 or 3½-inch Steam Pipe	.78	.92	.52	.68
6	4 or 4½-inch Steam Pipe	.82	1.00	.64	.84
7	5 -inch Steam Pipe	.90	1.10	.76	.96
8	6 -inch Steam Pipe	.98	1.18	.84	1.04
9	7 -inch Steam Pipe	1.10	1.36	.90	1.10
10	8 -inch Steam Pipe	1.26	1.58	.98	1.18
11	9 -inch Steam Pipe	1.40	1.70	1.06	1.26
12½	10 -inch Steam Pipe	1.58	1.90	1.14	1.34

A—For use on Steam lines not exceeding five pounds pressure.
B—For use on Steam lines exceeding five pounds pressure.
This covering cannot be opened to apply on pipes already in place.

UNITED STATES GAUGE COMPANY — NEW YORK, N. Y.

Main Office—44 Beaver Street

WORKS: SELLERVILLE, PA.

Branch Offices and Representatives

Boston, Mass., George W. Austin, 170 Summer St.
Chicago, Ill., 804 W. Washington Blvd.
Cleveland, Ohio, 710 Guardian Bldg.
Detroit, Mich., 1121 Book Bldg.
Fort Worth, Texas, Allen, Sproull & Allen, 908 Burk Burnett Bldg.

U.S. GAUGE CO. N.Y.

Branch Offices and Representatives

Los Angeles, Cal., C. R. Lynch, 918 Chester Williams Bldg.
Montreal, Que., Can., Joseph R. Martin, Board of Trade Bldg.
Philadelphia, Pa., 522 Penfield Bldg.
St. Louis, Mo., Charles W. Ambler, 4515 Maryland Ave.
Seattle, Wash., R. R. Cunningham, 83 Marion St.

U. S. Drawn Case Gauges

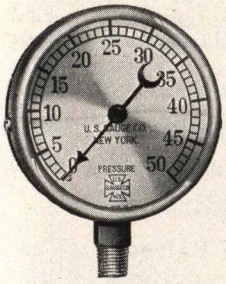


Fig. 500 S

Steel or Drawn Brass—Pressure and Vacuum Gauges

Prices Each, Including Cock with Each Gauge,
3½-inch Dial or Larger

Size	Steel Case Hard Rubber Finish	Brass Case	Standard Pipe Connection
4½-inch Dial	$8.00	$10.00	¼-inch Male
3½-inch Dial	7.00	9.00	¼-inch Male
3 -inch Dial	6.00	8.00	¼-inch Male
2½-inch Dial	6.00	8.00	¼-inch Male
2 -inch Dial	6.00	8.00	¼-inch Male

Fig. 500 S—This type of gauge has found a very wide use on boilers, engines and water supply systems. Graduated to any standard pressure from 15 to 500 pounds.

Fig. 501 S—Vacuum gauges are furnished with independent, non-corrosive movements necessary for indication of different degrees of vacuum. Usual graduation 30 inches vacuum.

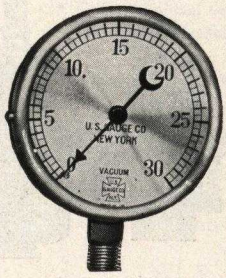


Fig. 501 S

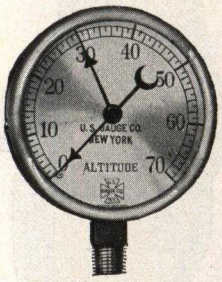


Fig. 502 S

Steel or Drawn Brass—Altitude or Compound Gauges

Prices Each, Including Cock with Each Gauge,
3½-inch Dial or Larger

Size	Steel Case Hard Rubber Finish	Brass Case	Standard Pipe Connection
4½-inch Dial	$12.00	$14.00	¼-inch Male
3½-inch Dial	10.00	12.00	¼-inch Male
3 -inch Dial	9.00	11.00	¼-inch Male
2½-inch Dial	9.00	11.00	¼-inch Male
2 -inch Dial	9.00	11.00	¼-inch Male

Fig. 502 S—This gauge is used to indicate the height of water in tanks, reservoirs, etc., and in connection with hot water systems of heating. Standard graduation, 70 feet of water.

Fig. 505 S—Constructed with independent, non-corrosive movements. Graduated to any pressure up to 500 pounds and to 30 inches of vacuum.

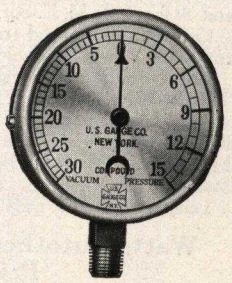


Fig. 505 S

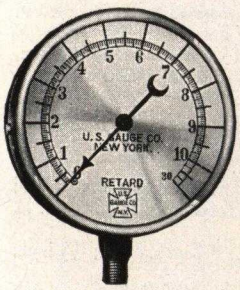


Fig. 505 R

Drawn Steel Retard Gauges

Prices Each, Including Cock

Size	Steel Case Hard Rubber Finish
4½-inch Dial	$12.00
3½-inch Dial	10.00

Fig. 505 R—Retard gauges are used on house heating boilers. They conform to the legal requirements of those states which require gauges used on house heating boilers to be graduated to 30 pounds per square inch and yet are capable of being accurately read in ounces of pressure. Connection ¼-inch male pipe thread.

Drawn Steel House Heater Gauges

Prices Each, Including Cock

Size	Steel Case Hard Rubber Finish
4½-inch Dial	$8.00
3½-inch Dial	7.00

Fig. 500 SHH—House Heater Gauges are constructed in compliance with the requirements of the A. S. M. E. Boiler Code. Graduated to 30 pounds, with the first 5 pounds graduated in ounces of pressure. Connection ¼-inch male pipe thread.

Fig. 620 C—(Not Illustrated)—Vapor Heating gauge graduated to 5 pounds in ounces. Same case and connection as Fig. 500 SHH. For use where very sensitive low presure gauge is required.

4½-inch size only $16.00

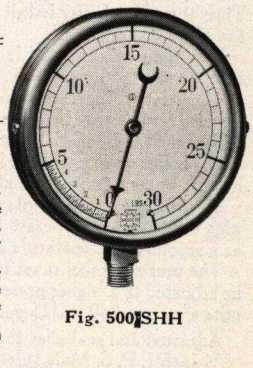


Fig. 500 SHH

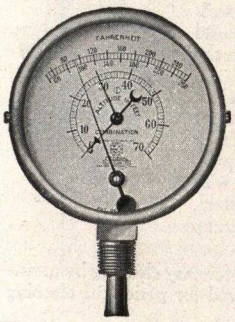


Fig. 588

Combination Altitude Gauge and Bi-Metal Thermometer

Fig. 588—In order to meet the demand for a combination instrument which would clearly indicate on one dial both the feet of head of water and the temperature of the water, the instrument herewith illustrated was produced. The pressure inlet to Bourdon Tube and the well into which is inserted the bi-metal strip actuating the temperature indicating hand are combined in one connection. The action is sensitive and accurate, and the application of the instrument most convenient.

Connection—½-inch male pipe thread.

3½-inch size. List $13.00
4½-inch size. List 15.00

Fig. 589—(Not Illustrated)—Combination eccentric scale altitude gauge and glass tube thermometer in same case and connection as Fig. 588.

3½-inch size. List $10.00
4½-inch size. List 12.00

Hot Water Thermometers for Hot Water Systems of Heating

U. S. Hot Water Thermometers are made of heavy gauge steel, white Duco finish, with the graduations imprinted directly on front surface.

The glass tube is mounted in a slot and the construction is such as to afford the clearest reading and prevent breakage of the tubes. Standard graduation—60 to 260 degrees F. Both straight and angle types have ½-inch male Iron Pipe connections.

PRICES—EACH

Fig. 571—Standard Thermometer straight stem $3.00
Fig. 572—Standard Thermometer angle stem $3.50
Fig. 573—(Not Illustrated)—Wide face Thermometer same as Fig. 571 but wider face. $3.40
Fig. 574—(Not Illustrated)—Wide face thermometer same as Fig. 572 but wider face. $4.30
Fig. 575—(Not Illustrated)—Midget type thermometer same as Fig. 571 but shorter shell $2.50

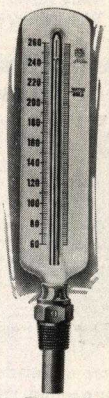


Fig. 571

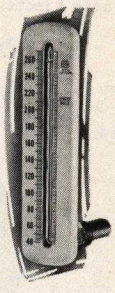


Fig. 572

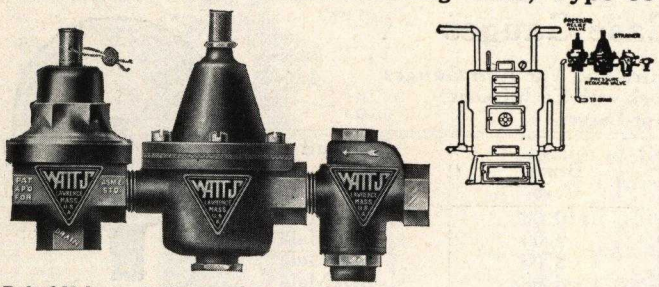
WATTS REGULATOR CO. LAWRENCE, MASS.

Manufacturers of Steam, Water and Air Specialties

244 Lowell Street

Exclusive Distributors United States: John G. Kelly, Inc., 210 East 45th St., New York

Watts Hot Water House Heating Unit, Type 38



Relief Valve Reducing Valve Strainer

The Watts Unit automatically keeps the hot water system filled with water. It consists of a ½-inch Strainer, ½-inch Pressure Reducing Valve (set 10 to 13 lbs.), a ½-inch Pressure Relief Valve (set and sealed to relieve between 25 and 30 lbs. A. S. M. E. Std.), tested assembled at factory.

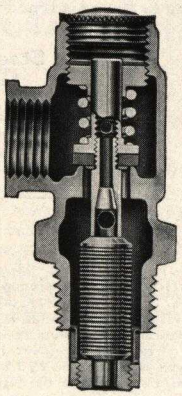
Castings, springs and strainers of bronze—nothing to rust or cause electrolysis in Valves. No soldered or loose parts.

Adjustment screws in Valves are held firmly with lock nuts or seal caps.

Relief Valve is sealed at factory and adjustment cannot be tampered with without breaking seal, but it can be adjusted if desired. A safety port tells if anything goes wrong. Is listed by Underwriters Laboratories and approved by the National Board of Boiler and Pressure Vessel Inspectors as A. S. M. E. Standard.

Length 8½ inches; height 5½ inches; weight 5 pounds.

Watts Autotherm Type 40 Temperature and Pressure Relief Valve



The Thermostatic bellows opens the valve before the temperature reaches 212 degrees F. and drains just enough of the hottest water to reduce the temperature 10 degrees, then the valve automatically closes. Thus the range boiler is full of hot water even after the valve has operated.

This temperature relief is positive as it is practically unaffected by pressure.

The valve will operate in any position, and is recommended for all range boilers and storage systems.

Designed to be installed in a tapping near the top of the boiler or if necessary in a fitting to which the hottest water has constant access.

To meet the requirements of certain cities a fusible plug is provided to operate at a higher temperature as a secondary temperature relief.

The pressure relief is set for 125 pounds. Cannot be adjusted to a higher pressure, but adjustment permits a range of 30 to 125 pounds.

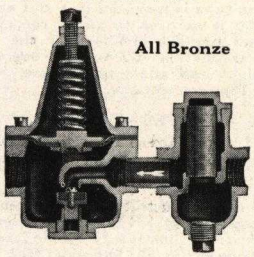
Adjusted and sealed at the factory.

¾-inch I. P. S. Male Inlet. ½-inch I. P. S. Female Drain. Height above thread 3 inches. Weight 1¼ pounds.

Watts Pressure Reducing Valves For Household Water Service



Type 23



All Bronze

Type 23-S

These Regulators are made of high grade composition, built up of virgin metals which assure sound, strong castings. Diaphragms are made of special rubber, selected for its ability to absorb the continued shocks and flexures to which it is constantly subjected. It does not deteriorate rapidly and will give years of unequalled service.

The disc is a medium hard compound which closes against a well rounded seat, assuring a tight shut-off under all conditions of service with no danger of disc fatigue or cutting.

Will positively shut tight against a dead end and will not allow the pressure to build up when no water is being used.

The strainer is a heavy, strong bronze casting with a large sediment space and plug for blowing down.

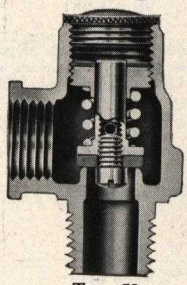
The screen is a rigid perforated brass cylinder, easily and quickly removed for cleaning.

Stock Valves are adjustable and set to deliver 45 pounds.

Watts Diaphragm Relief Valves



Calibrated Top — ½-inch size only



Type 53



Type 30
½ to ¾-inch I. P. S. Male Inlet
½ to ¾-inch I. P. S. Female Drain
Pressure and Relief only

Type 300
1 to 2-inch I. P. S. Male Inlet
1 to 2-inch I. P. S. Female Drain
Pressure and Relief only



These all-bronze Valves prevent excessive pressure and explosions. Body is designed to be installed in fitting in hot or cold water line.

Valve Seat is in ceiling of Valve above the flow line, which prevents dirt lodging on seat and causing a leak. Valve cannot foul or clog.

Diaphragm is 3 or 5 laminated monel and phosphor bronze and is attached to a non-metallic disc. Each ply withstands 150 pounds pressure. Valves are drip tight. No guide wings to corrode or stick.

Diaphragm Relief Valve listed by Underwriters Laboratories and approved by National Board of Boiler and Pressure Vessel Inspectors as A. S. M. E. Standard. Pressures up to 125 pounds.

Weight 1½ lbs., except Type 300; 1-inch, 4½ lbs.; 1¼-inch, 6 lbs.; 1½-inch, 8 lbs.; 2-inch, 13 lbs.

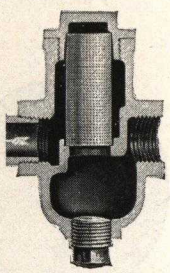
Watts Strainers



Type 37

A heavy all-bronze strainer for water or air. Screen is a strong perforated brass cylinder. Water flows first through the large sediment chamber where it deposits most of the dirt, then through the screen to service.

The baffle plate in this Strainer makes it impossible for sediment to pile up in front of the screen and cause it to collapse from pressure. That also does away with the strainer slowing up the system. Water passes into the Strainer, up the *inside* of the screen.



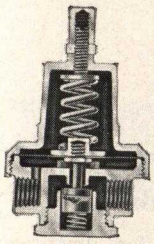
Type 34

All sediment drops to the chamber at the bottom for easy cleaning by means of the clean-out plug. The screen can be removed for periodical cleaning without disturbing the installation.

Type 34 made with I. P. S. female connections only. Sizes ½-inch to 2-inch.

Type 37 made in ½-inch I. P. S. only. Female inlet and male outlet.

Watts Pressure Reducing Valve, Type 26



For water, air, light oils and certain gases. Especially recommended for its sensitiveness and reliability on low pressures. Used extensively on humidifiers, recording instruments and mechanical refrigerators.

All bronze-body and spring cage are forgings.

A Jenkins disc assures a permanently tight seat.

Diaphragm is rubber, insuring sensitiveness, flexibility and strength. Can also be furnished with monel diaphragm.

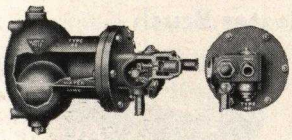
It is simple in principle and design and has only a few parts. Is built to withstand the abuse of continued service.

This valve is extremely accurate and practically fool-proof. It is designed for initial pressures up to 300 pounds. Stock valves are adjustable and set to deliver 15 pounds, No. 66 spring with range of adjustment 1 to 30 pounds. Furnished with No. 67 spring for delivery pressures 25 to 175 pounds.

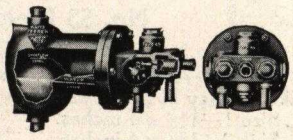
Made in sizes ⅛ in. and ¼ in. only. I. P. S. female connections.

Height 3¾ inches, diameter 2½ inches, weight 1¼ pounds.

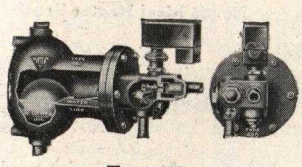
Watts Boiler Water Feeders



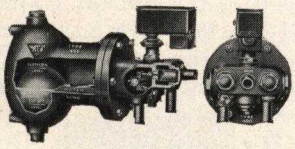
Type 48
Single Valve Feeder



Type 49
Dual Feeder



Type 480
Single Valve with
Low Water Cut-off Switch



Type 490
Dual Feeder with
Low Water Cut-off Switch

They automatically keep the water level in boiler above the danger point.

Feed and Overflow Valves are mounted on a rotating shaft operated by movement of a seamless copper float, and the rotation of this shaft operates Valves. There are no stuffing boxes, hinges, links or other wearing parts, and there is no sliding friction.

Feed Valve mechanism is above water line. No cold water enters float chamber to cool it and give a false reproduction in float chamber of what is going on in the boiler.

There are only 4 parts that could wear over a period of years and these can be replaced in less than 3 minutes.

The steam composition Feed Valve Disc is mounted in a floating head and insures accurate seating. The bronze seat is well rounded.

A monel metal shock absorbing spring takes up excess pressure and prevents bumping, hammering, shock and excess pressure on the seat and disc.

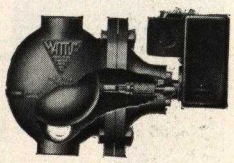
All parts are interchangeable. A Single Feeder can be changed to a Dual Feeder after installation without tearing down job, cutting pipe or shutting down heating system.

Water line can be easily raised after installation without draining water from boiler, tearing down job or cutting pipe.

Bronze Strainer removes sediment. Floats are seamless copper.

There is a Watts Feeder for every type of oil, gas or coal fired boiler.

Watts Low Water Cut-Off, Type 50



This is not a boiler feeder, but a device that registers a dangerous drop in the water line and electrically shuts off the oil burner, stoker, or whatever automatic form of heat is being used.

Note simplicity and compactness of design. There are no stuffing boxes, slip joints, or other complicated parts to wear, corrode, or stick.

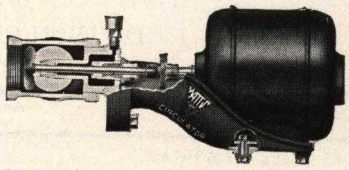
The bellows seal is a one-piece, hydraulically formed bellows, made tight by mechanical joints. No solder is used.

This bellows is made of a special metal, adopted as a result of corrosion tests made under the most severe water conditions. Float is seamless copper. Watts Low Water Cut-off is approved by Underwriters' Laboratories.

Suitable for any steam or vapor job on steam working pressures up to 75 pounds. For either A. C. or D. C. current. Maximum voltage 250—⅓ H. P.

Shipping weight 15 pounds.

Watts Water Circulator, Type 47



The smallest size Watts Circulator will increase the circulation of water 90 feet per minute. It will reduce the temperature difference between water leaving boiler and returning to it as much as 50 degrees.

It saves fuel and gives more uniform heat. Permits heating radiators at end of line.

The two-blade propeller gives greatest possible thrust to water. Propeller, shaft and bearing parts are bronze. One filling of the lubricating chamber lasts a year.

Equipped with 110 volt, 60 cycle A. C. noiseless motor.

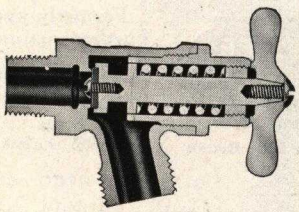
Made in 2-inch, 3-inch and 4-inch sizes, equipped with straight tee of same size, weighing respectively 50, 60 and 75 pounds.

Watts Regulator System, Type 500

The savings it effects in fuel, repairs and depreciation will wipe out its cost in a few years.

This "control heat water heating" system consists of a large size bronze lever handle Relief Valve; all bronze Automatic Feed Valve; all bronze baffled-screen Strainer; silent electric-driven electric Circulator; special air-cushioned Pressure Tank, and a Tridicator Gauge.

Watts Relief Faucet, Type 44



Made only in ½ Male I. P.
Size with Hose Connection

Faucet may be installed in sink, tubs or as a boiler drain cock.

Castings are steam bronze and hydrostatically tested under actual conditions.

Faucets are set to relieve at 125 pounds unless otherwise specified on order.

Faucets are not adjustable.

Furnished in rough brass, or polished.

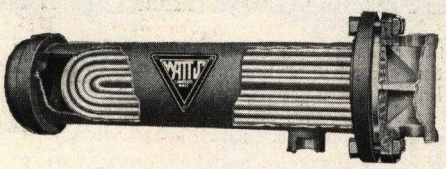
Special Setting 100-85-60 pounds.

Length 4 inches.

Weight 1 pound.

Watts U-Tube Heat Interchangers

Copper tubes, bronze head, wrought iron shell. Instantaneous direct or indirect heating. Water tubes tested to 500 pounds, shell to 300 pounds. Suitable for heating water, oil or gas, using steam, vapor or hot water as heating medium. Sizes 300 to 6000 gallons per hour.



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WORCESTER BRUSH & SCRAPER CO. WORCESTER, MASS.

38 Austin Street

DIVISION OF THE MASON-WORCESTER COMPANY

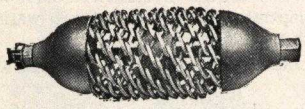
Representatives:

New York, N. Y., Godfrey Keeler Co., 70 Warren Street.

Oakland, Cal., Fred P. Winchester, 415 Bellevue Avenue.

Winnipeg, Man., Can., J. F. Christie Co., 125 Phoenix Bldg.

No. 3 Criss-Cross Boiler Tube Cleaner



No. 3 Criss-Cross Cleaner

Made flexible and self-conforming. Cutting edges placed at right angles to the surface of the tube. Elliptic as it cuts the scale and soot from walls of tube and also removes it. Spring formation adjusts the Cleaner so that it has perfect bearing. Requires no brush attachment.

Sizes 1½ to 6 inches. List price $1.00 per diameter inch. Sizes under 2 inches take the 2-inch price.

No. 4 and 5 Improved Ingalls Boiler Tube Cleaner

With flange supporting connecting arms, tempered steel spring enclosed in pressed steel shell, and full size spindle the entire length.

No. 4 without brush, $1.00 per diameter inch. No. 5 with brush, $1.25 per diameter inch. Sizes 1½ to 5 inches. Sizes under 2 inches take 2-inch price.



No. 5 Ingalls with Brush

No. 6 Worcester Flue Brush



No. 6 Worcester Flue Brush

Formerly known as "Abrams." Further improved and treated with Croton paint, making brush rust proof. All wires securely fastened. $1.00 per diameter inch. Sizes 1½ to 6 inches. Sizes under 2 inches take 2-inch price.

No. 50 Hard Spiral Flue Brush

Made of oil tempered flat steel wire firmly secured in ¼-inch pipe nipple.

Sizes 1¼ to 6 inches. 1¼ inches, 1½ inches and 1¾ inches take 2-inch price. List price $1.00 per diameter inch. Special sizes made to order.



No. 50 Hard Spiral Flue Brush

No. 51 Rice or Fine Wire Brush



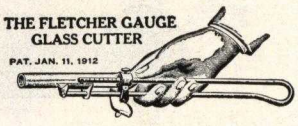
No. 51 Rice or Fine Wire Brush

Made of oil tempered round steel wire, fitted with ¼-inch pipe nipple.

Sizes 1¼ to 6 inches. 1¼ inches, 1½ inches and 1¾ inches take 2-inch price. List price $1.00 per diameter inch. Special sizes made to order.

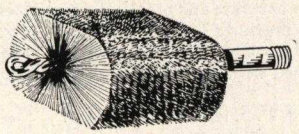
The Fletcher Gauge Glass Cutter No. 1

The Fletcher Gauge Glass Cutter for cutting glass tubing has an improved lever attachment, large rest, high grade diamond cutter, and is accurate to operate. List price $16.00 dozen.



No. 1

Heater or Sectional Boiler Brushes



No. 52 Oval Fine Wire Flue Brush

No. 52—Made for American and other make boilers having square flues.

Size 1—2 x 4 inches.
Size 2—2½ x 4½ inches.
Size 3—3 x 5 inches.

No. 53 Ideal Heater Brush

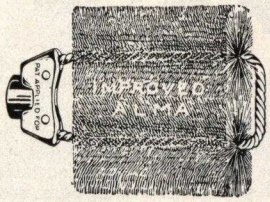
No. 53—A brush for flat surfaces like Gurney Heaters, etc.

Size 1—1½ x 4 inches.
Size 2—1¾ x 4 inches.
Size 3—2 x 4½ inches.



No. 53 Ideal Heater Brush

No. 54 Alma Heater Brush



No. 54 Alma Heater Brush

No. 54—Grip fastener with nipple end. Made in all sizes and are adapted to nearly every make of furnace, steam or hot water heaters.

Size 1—1¾ x 4½ inches.
Size 2—2 x 5 inches.
Size 3—2½ x 6 inches.

No. 47 Sampson Heater Brush

No. 47—The Sampson fills a long felt want for a heater brush with bristles around the end; has a patented grip, which holds body wires firmly. Also furnished with pipe nipple connection.

Size 1—1½ inch diameter.
Size 2—2 inch diameter.
Size 3—2½ inch diameter.



No. 47 Sampson Heater Brush

No. 56 Wilson Heater Brush



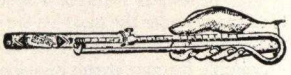
No. 56 Wilson Heater Brush

No. 56 — Used for Mercer, United States and other makes of heaters. Extra heavy filling.

Size 1—2 x 4 x 6 inches.
Size 2—2½ x 4½ x 6 inches.
Size 3—3 x 5 x 6 inches.

The Worcester Gauge Glass Cutter No. 2

The Worcester does exceptionally good work and is economical in price. List price $8.00 dozen.



No. 2

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Products

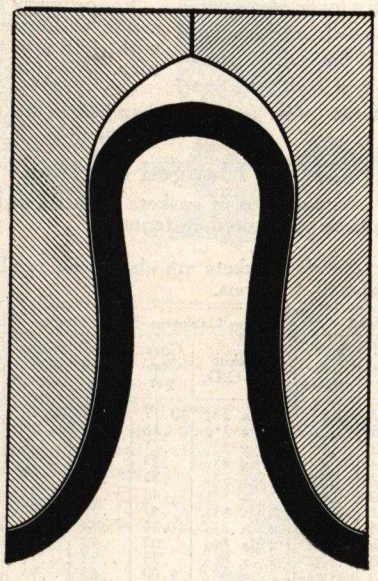
Corrugated Copper Expansion Joints.
Pipe Bends.
Chemical Apparatus.
Copper and Sheet Metal Work.
Copper Boilers.
Hot Water Tanks.

Badger Self-Equalizing Expansion Joints

These have been on the market for more than forty years and as sold today represent the results of a series of distinct improvements. Badger engineers are responsible for such developments in the corrugated type of joint as: special analysis copper—of which the seamless tubes have been made—the equalizing rings, the monel metal sleeve to protect against superheated steam, and the welding end joint. Now, Badger Joints carry another big improvement in a new design corrugation, which functions on the principle of Directed Flexing.

Before passing to this subject, a word about the importance of using the corrugated type of joint. Not only is it compact and easily installed, but it requires no maintenance. It uses no packing.

Directed Flexing



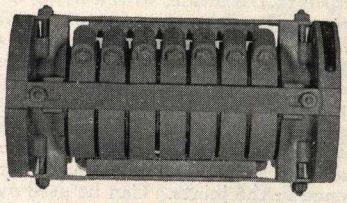
The shape of the new Badger Corrugation is entirely curved. There are no straight sides where flexing stresses can localize and thus cause crystallization of the metal. In action the corrugation undulates, using the equalizing ring as a guide. This is the so-called "Directed Flexing." Instead of being left to chance, the flexing of the metal is guided so as to undulate along an all-curved surface.

Longer joint life is the direct result of this improvement. A new bulletin, describing this new corrugation, will be sent on request.

Different Types Available

Both flanged end and welding end joints are available from 3-inch (welding) and 4-inch (flanged) up. Single or double joints with or without service outlets. All joints can be equipped with telescoping monel metal sleeves to protect against superheated steam. We can furnish flanged joints less than 4-inch in size by fitting the 4-inch units with companion flanges, bolts and gaskets tapped to the desired size.

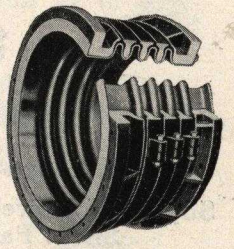
Flanged Types



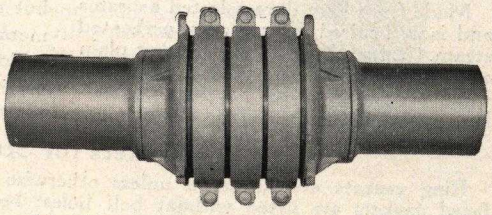
Fitted with alignment bars on the 4 and 5-inch sizes. Choice of standard or extra heavy flanges.

On 6-inch pipe and larger, no alignment bar is used. Standard 125-lb. or extra heavy 250-lb. flanges as required.

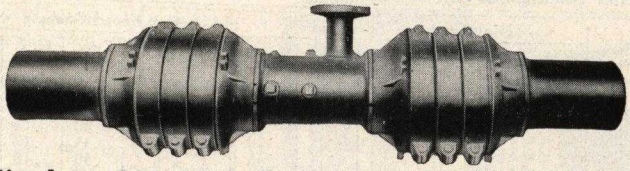
Welding Types



For use with both saturated and superheated steam. Single type from 3-inch up, to take care of 1-inch expansion or more. Pipe nipples welded directly into pipe line.



Double units for 2-inch expansion or more. Equipped with service outlets, if desired. Complete units furnished, mounted on base plate, with anchor and guides.



Single and Multiple Corrugated Expansion Joints for Low Pressure

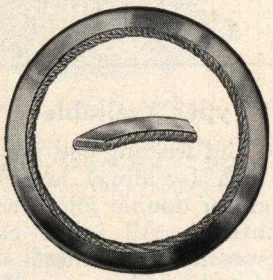
For use between turbine or engine exhausts and condenser or on low pressure lines. Excellent for absorbing shock and vibration. Flanges in round, oval or rectangular shapes. Guaranteed up to 30-lb. pressure.

CHICAGO-WILCOX MFG. CO. CHICAGO, ILL.

7701 Avalon Avenue

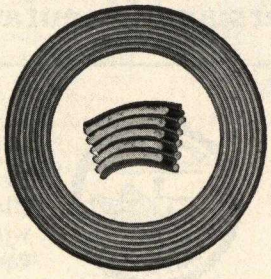
Manufacturers of Gaskets and Washers for Plumbing, Refrigeration, Pumps, Boilers and Industrial equipment. We furnish all sizes of taper lead washers for waste pipe of plumbing fixtures; also lead, fibre, copper and brass washers of all sizes; gaskets for electrical refrigerators. We make our own cutting dies, and are in a position to offer engineering service and assistance in working out any gasket problems.

Wilcox Patented Self-Sealing Gaskets



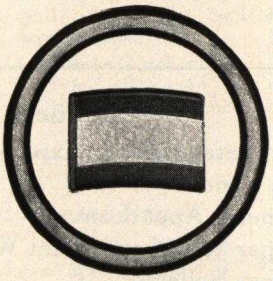
The Wilcox Patented Self-Sealing Gasket will give dependable and lasting service. The construction of the Wilcox Gasket is unique in its simplicity, having a U-shaped cover of soft ductile metal, open to the inside, with a filling of elastic material such as asbestos, rubber or leather. A Wilcox Gasket will not stick to the flanges. When flanges are opened up a little, the gasket will drop out easily and the faces of the flanges are left clean and smooth. Wilcox Gaskets will not get out of shape or fold over when being installed and the gaskets will not spread when tightened in the joints. Can be used over and over again.

Corrugated Copper and Asbestos Gaskets



These gaskets are made of steel, monel and other metals as well as copper and filled with 1/8-inch asbestos cord. We do not make these gaskets full faced; they are made to fit inside the bolts. Can be furnished in any size desired.

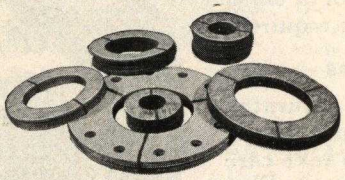
Single and Double Jacket Gaskets



Usually made with copper cover, but other metals can be furnished. Asbestos board is used as the filling. Regularly made ring type, not full faced. Furnished for standard and extra heavy use in any size desired.

Gaskets for Flanged Fittings to Fit Inside of Bolts

Pipe Size Inches	STANDARD					EXTRA HEAVY				
	Outside Diameter of Gasket Inches	Wilcox Type List	Corrugated Copper Asbestos	Single Jacket	Double Jacket	Outside Diameter of Gasket or Guard Inches	Wilcox Type	Corrugated Copper and Asbestos	Single Jacket	Double Jacket
3/4	2	$0.07 1/4								
1	2 1/8	.09	$0.16	$0.07	$0.11	2 5/8	$0.10 1/2	$0.20	$0.07	$0.11
1 1/4	2 7/8	.12 1/2	.20	.08	.12	3 1/8	.15	.27	.10	.15
1 1/2	3 1/4	.15	.24	.10	.15	3 3/4	.23 3/4	.30	.14	.21
2	4	.25	.32	.14	.21	4 1/4	.31	.40	.17	.25
2 1/2	4 3/4	.38	.40	.16	.24	5	.38	.50	.20	.30
3	5 1/4	.44	.48	.20	.30	5 3/4	.50	.60	.25	.38
3 1/2	6 1/4	.58	.56	.30	.45	6 1/2	.58	.70	.30	.45
4	6 3/4	.66	.64	.34	.51	7	.66	.80	.38	.57
4 1/2	6 7/8	.66	.72	.38	.57	7 5/8	.84	.90	.47	.71
5	7 5/8	.84	.80	.47	.71	8 3/8	.92	1.00	.53	.80
6	8 5/8	.99	.96	.55	.83	9 3/4	1.13	1.20	.65	.98
7	9 7/8	1.13	1.12	.68	1.02	10 7/8	1.25	1.40	.75	1.13
8	10 7/8	1.25	1.28	.75	1.13	12	1.38	1.60	.83	1.25
9	12 3/8	1.50				13	1.50			
10	13 1/4	1.63	1.60	1.00	1.50	14 1/8	1.75	2.00	1.10	1.65
12	16	1.88	1.92	1.25	1.88	16 1/2	2.00	2.40	1.35	2.03



SuperX Compressed Asbestos Sheet Packing

Made from long fibre selected asbestos and is well suited for use on superheated steam. SuperX is furnished either plain or graphited, in sheets 50 inches square. Price per pound $1.50. SuperX cut gaskets are listed in table below.

Corrugated Metal Gaskets

These gaskets are usually made of copper, but can be furnished in steel, lead, monel metal, nickel silver, etc., if desired. Corrugations are regularly 1/16-inch high and five per inch in width. See table below for list prices.

Rubber Packing

For ordinary service, such as low pressure steam heating and water, a gasket of rubber with cloth insertion (C. I.) is often satisfactory. Also furnished in sheets.

Our C-W Red Rubber Packing is recommended for steam and water pressures up to 125 pounds. Furnished cut or in sheets.

Gaskets for Standard and Extra Heavy Flanged Fittings

Ring gaskets are furnished unless otherwise specified. Full faced gaskets are listed without bolt holes; bolt holes will be punched if requested for a moderate extra cost.

Prices of Rubber and SuperX Gaskets are of 1/16-inch thickness; other thicknesses can be supplied if desired.

Larger sizes of gaskets than those listed can be furnished and prices are quoted on request.

Similar gaskets are also made in all sizes to fit Flange Unions and Nut Unions.

Size Pipe Inches	Ring Gaskets—Standard					Full Faced Gaskets—Standard					Ring Gaskets—Extra Heavy				Full Faced Gaskets—Extra Heavy			
	Gasket I.D. O.D.	Corr. Copper	C. I. Rubber	Red Rubber	Super X Asbestos	Gasket I.D. O.D.	Corr. Copper	C. I. Rubber	Red Rubber	Super X Asbestos	Gasket I.D. O.D.	Corr. Copper	Red Rubber	Super X Asbestos	Gasket I.D. O.D.	Corr. Copper	Red Rubber	Super X Asbestos
1	1 x 2 1/2	$0.16	$0.05	$0.09	$0.10	1 x 4	$0.25	$0.10	$0.17	$0.21	1 x 2 3/4	$0.17	$0.17	$0.14	1 x 4 1/4	$0.30	$0.38	$0.32
1 1/4	1 1/4 x 2 7/8	.17	.07	.13	.14	1 1/4 x 4 1/2	.30	.14	.25	.28	1 1/4 x 3 1/4	.18	.17	.17	1 1/4 x 5	.36	.38	.38
1 1/2	1 1/2 x 3 3/8	.18	.07	.13	.17	1 1/2 x 5	.35	.14	.25	.35	1 1/2 x 3 7/8	.21	.17	.21	1 1/2 x 6	.54	.38	.47
2	2 x 4 1/8	.21	.07	.17	.20	2 x 6	.50	.18	.34	.42	2 x 4 3/8	.24	.19	.26	2 x 6 1/2	.60	.45	.60
2 1/2	2 1/2 x 4 7/8	.27	.09	.21	.25	2 1/2 x 7	.67	.23	.42	.52	2 1/2 x 5 1/8	.31	.25	.33	2 1/2 x 7 1/2	.80	.55	.65
3	3 x 5 3/8	.31	.12	.25	.35	3 x 7 1/2	.75	.28	.50	.65	3 x 5 7/8	.43	.32	.41	3 x 8 1/4	.95	.67	.87
3 1/2	3 1/2 x 6 3/8	.47	.14	.35	.45	3 1/2 x 8 1/2	.95	.30	.67	.85	3 1/2 x 6 1/2	.47	.35	.46	3 1/2 x 9	1.10	.75	1.05
4	4 x 6 7/8	.52	.16	.39	.50	4 x 9	1.05	.35	.75	1.05	4 x 7 1/8	.58	.38	.57	4 x10	1.30	.95	1.30
4 1/2	4 1/2 x 7	.52	.16	.43	.55	4 1/2 x 9 1/4	1.05	.37	.85	1.10	4 1/2 x 7 3/4	.62	.44	.61	4 1/2 x10 1/2	1.40	1.00	1.40
5	5 x 7 3/4	.55	.19	.50	.60	5 x10	1.20	.42	1.00	1.20	5 x 8 1/2	.75	.52	.77	5 x11	1.50	1.15	1.55
6	6 x 8 3/4	.65	.23	.59	.70	6 x11	1.35	.47	1.20	1.40	6 x 9 7/8	1.00	.63	.95	6 x12 1/2	1.90	1.45	1.90
7	7 x10	.80	.28	.68	.85	7 x12 1/2	1.70	.58	1.35	1.75	7 x11	1.15	.85	1.20	7 x14	2.30	1.55	2.30
8	8 x11	.90	.30	.75	.95	8 x13 1/2	1.85	.65	1.45	1.90	8 x12 1/8	1.35	.90	1.25	8 x15	2.55	1.70	2.50
10	10 x13 3/8	1.30	.42	1.00	1.40	10 x16	2.45	.88	2.00	2.75	10 x14 1/4	1.65	1.15	1.75	10 x17 1/2	3.25	2.20	3.30
12	12 x16 1/8	1.90	.58	1.25	1.75	12 x19	3.40	1.15	2.50	3.45	12 x16 5/8	2.15	1.50	2.15	12 x20 1/2	4.35	2.95	4.30

KIELEY & MUELLER, INC. NEW YORK, N. Y.

Main Office and Warehouse—34 West 13th Street

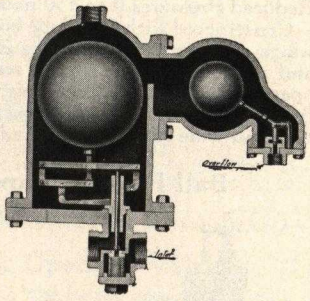
Established 1879

Plant—40 Paris Street, Newark, N. J.

Manufacturers of Steam, Water, Air, Oil and Gas Specialties for Regulation and Control of Heating, Power and Plumbing Installations

Kieley & Mueller, Inc., an organization backed by fifty-three years experience in the manufacture of Engineering Specialties, offers a line of products distinguished for simplicity of design and operation. K. & M. installations of thirty or more years ago are still delivering unfailing service. K. & M. specialties for instance, have been in use since 1906 in Public School No. 84, Brooklyn, N. Y., and these specialties are found in such new buildings as the Empire State and the R. C. A. in New York City.

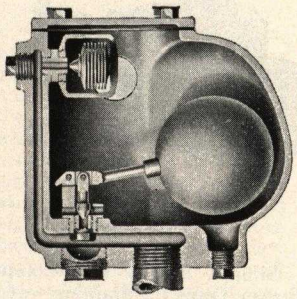
Duplex Water Feeder



For low pressure boilers. Prevents boiler damage due to low water and also will prevent flooding of boiler. In one size only with 1-inch water connections. Suitable for water pressure up to 125 lbs.—steam up to 50 lbs.

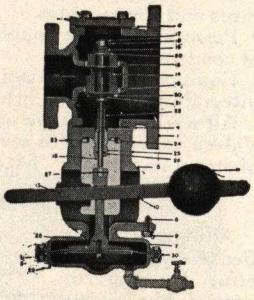
Valve seat and disc removable without disturbing pipe connections. Integral strainer.

Thermostatic Float Operated Steam Trap



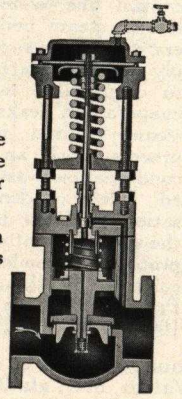
This is a trap of large capacity with an automatic air vent which makes air binding impossible. Open bucket traps without automatic air vent are available for any pressure.

Pressure Regulator



Special '98 Pressure Regulator for use in connection with vacuum or vapor heating systems or any service where close pressure regulation is desired. For dead end piping where a tight seating valve is necessary, specify single seated type. Adaptable for use on air, gas or steam. When ordering state service.

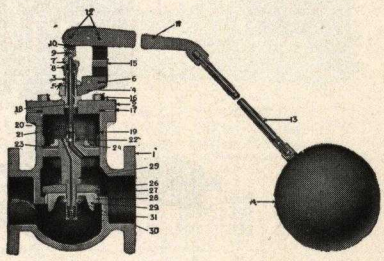
Altitude Valve



For maintaining and controlling the water line in large storage tanks. The valve has a large range of adjustment and is designed to prevent water shock or hammer when opening and closing.

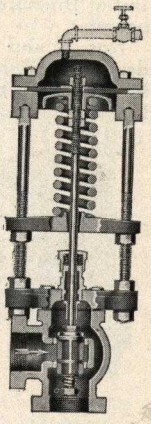
The bodies are constructed of cast iron with internal parts of bronze. They are made in sizes from 2 to 14 inches.

Float Valve



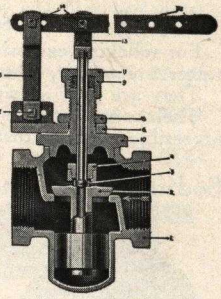
Automatic Piston Actuated Float Valve for cold water. Screwed and flanged ends, Globe and Angle patterns. Suitable for controlling the water line in tanks, reservoirs, and water towers. Scientifically designed to close and remain tight, regardless of pressure on the Inlet side. This piston type control prevents water hammer and shock. The piston operates in a non-corrodible brass sleeve. Removable seat and disc. Also furnished with float boxes for auxiliary control or outside control. Bodies cast iron screwed and flanged.

Pump Governor



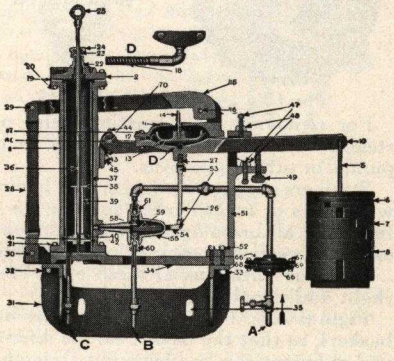
Rockaway Pump Governor designed for use in regulating water, air and gas pressures and controlling the speed of the pump or machine. They respond to the slightest variation in pressure and are thoroughly reliable. The spring control permits a wide variation in pressure control. Adjustment of the governor accomplished by changing the tension on the diaphragm spring. Also furnished piston operated and pilot operated for service on extreme high pressures.

Quick Opening Valve



Quick Opening Valve. For steam. Designed to open and close with slight weight at lever. Suitable for any and all services, such as controlling steam to pumps governing water lines, controlling fan engines and stoker engines. Also used on temperature regulators of the motor driven type where steam is supplied by a central heating system.

Climax Damper Regulator



Hydraulically operated and will regulate pressures within a 1 pound variation. The regulator is balanced by weights against the steam pressure on a diaphragm which by operating a small water valve controls the movement of the piston operating the flue damper.

163 Page CATALOG showing K. & M. Engineering Specialties furnished free upon request.

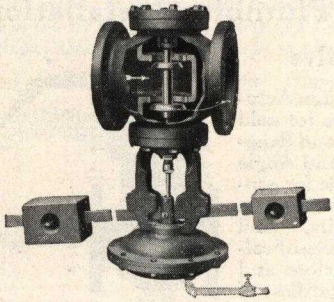
MUELLER STEAM SPECIALTY CO., INC. NEW YORK CITY

General Offices—349-351 West 26th Street

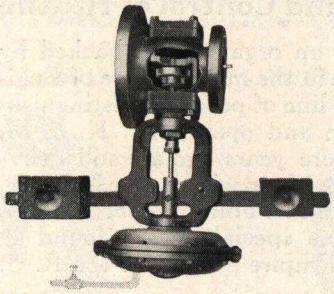
Manufacturers of

Steam, Water, Air, Oil and Gas Specialties for Heating and Power Plants and Plumbing Installations

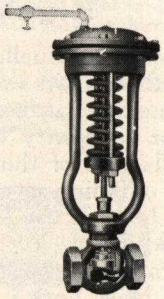
Pressure Reducing Valves—Straight Pattern and With Increased Outlet



No. 11



No. 15



No. 21

No. 11—For Vacuum, Vapor and Low Pressure Heating Systems. Initial Pressures, up to 200 pounds; Reduced Pressures, 0 to 10 pounds.

Nos. 15 and 21—For automatic control of reduced pressures on dead-end service, requiring a tight closing valve, such as tank heaters, kitchen utensils, sterilizing apparatus, laundry equipment, kettles, cookers, driers, etc. Initial Pressures up to 200 pounds. Reduced Pressures 0 to 150 pounds.

Constructed with full globe bodies. Center guide eliminates the wings on discs, and increases efficiency, assures minimum noises and prolongs the life of the seats and discs. Lever and weight operates on a steel roller bolt, assuring a most sensitive valve. Spring type furnished with special long springs for sensitive operation and wide ranges of reduced pressures.

Compact Water Pressure Reducing Valves

No. 33



No. 33

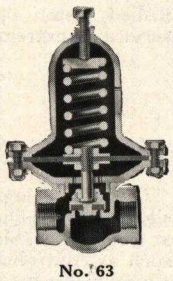
Used for controlling water pressures that require automatic and positive control of reduced pressures.

They are compact, and have renewable composition discs.

Made in standard and extra heavy weights suitable for all initial pressures and wide ranges of reduced pressures.

Diaphragm Operated Water Relief Valves

No. 63



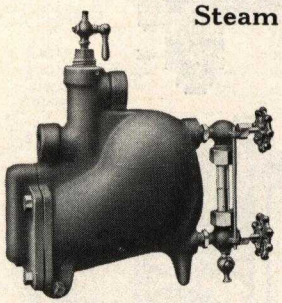
No. 63

For relieving excessive pressure of hot or cold water, steam, air, oil or gas.

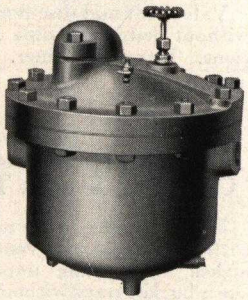
They are very sensitive and respond quickly.

Their construction is durable and compact, and accessible without disturbing pipe connections.

Ball Float and Open Bucket Steam Traps



No. 219—Up to 30 lb.
No. 221—Up to 150 lb.



No. 229—Up to 30 lb.
No. 231—Up to 150 lb.
No. 233—Up to 250 lb.

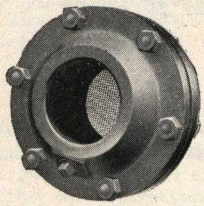
Simple, Sturdy and Compact Ball Float and Open Bucket Steam Traps for draining water of condensation from steam apparatus and steam mains.

Powerful leverage enables them to take care of large quantities of condensation.

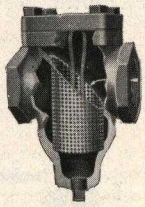
Equipped with strainer, water gages, air cocks, blow off and integral by-pass valve, when desired.

All working parts are accessible without disturbing any pipe. Valves are sealed with several inches of water, making the escape of steam impossible. Made in sizes from ½ to 3 inches.

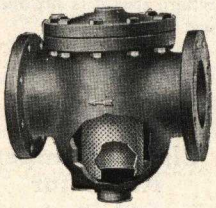
Sediment Strainers for Steam, Water, Oil, Gas, Air, etc.



No. 125



No. 145



No. 165

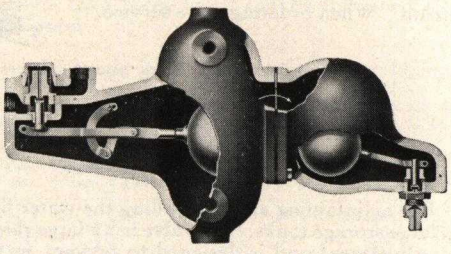
For removing scale, cuttings, and other foreign matter from steam, water, air, oil and gas lines, or in connection with valves, pumps or other apparatus.

Strainers are furnished with iron bodies, plain or galvanized, and with brass or copper mesh suitable for the service. They can be furnished all brass or nickel plated iron or brass, or cast steel for extra high steam pressures, at an additional cost.

Strainers with special mesh or of special metal furnished at a slight additional cost.

Figures Nos. 145 and 165 Strainers have closed or open bottom baskets, so that the basket can be removed for cleaning, or all dirt and sediment can be blown out through the bottom blow out connection.

Automatic Water Feeders



No. 517—Duplex up to 22,500 Square Feet

Automatic Water Feeders with a powerful leverage to control the water line in steam boilers, etc. They supply make up water to compensate for evaporation, leaks, steam utilized in process work and condensation wasted. Where condensation held up in the system eventually returns in large quantities, our Duplex type protects the boiler against flooding. All working parts of non-corrosive metal, are accessible without breaking pipe connections. Provided with an integral strainer. For steam pressures up to 100 pounds, water pressures up to 120 pounds.

Catalogue and Bulletins covering the above specialties and our Strainers of all types, Pump Governors, Balanced Lever Valves, Air Traps, Back Pressure Valves, Alarms, Tank Float Valves, etc., gladly furnished on application.

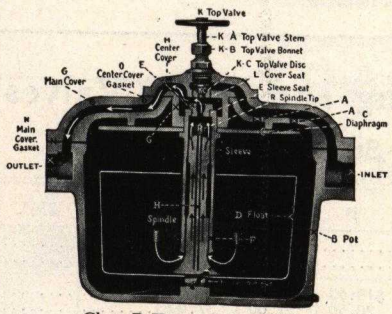
NASON MANUFACTURING CO. NEW YORK, N. Y.

Established by Joseph Nason in 1841 — 71 Fulton Street — Cable Address: "UNITORGAN," New York

Nason Steam Traps

Receive and automatically discharge condensation from heating surfaces of every description. Have but one working part, so located as to insure immunity from injury, and a permanent water seal over point of discharge, preventing escape or loss of steam when valve is open. Operation is purposely intermittent thus prolonging the integrity of seating surfaces.

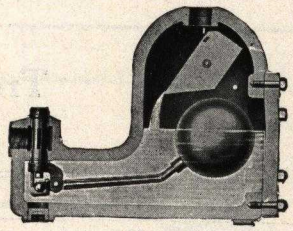
Condensation enters at "Inlet," passes through opening AA and is diverted into pot B, by diaphragm C, where it gradually raises float D, thereby closing discharge valve E. Valve K, the by-pass being closed, float D is filled by overflowing water, causing it to sink, and removing steam pressure which holds discharge valve E closed. Steam pressure then drives water through sleeve F (see arrows) through discharge valve E and passage to "Outlet." The float, now empty, except for a water seal, is thus lightened, rises, and operation repeats.



Class B Trap, 1 to 20 lbs.
Class C Trap, 20 to 70 lbs.
Sidelug Trap, 40 to 150 lbs.

No.	1	2	3	4	5
Pipe Conn., in.	½	¾	1	1¼	1½
Diam. Flange, in.	10¾	14¼	15¾	19	24¼
Diam. Cylinder, in.	8	10½	12	14	18
Ht. Over Valve, in.	11	14	16¼	18½	23½
Ht. Over Cover, in.	8	10	12	14	15½
Lin. Ft. 1 in. Pipe	1500	3450	5250	7650	12000
Sq. Ft. Surface	500	1150	1750	2550	4000
Discharge, lbs. Water per min.	4½	6½	10	15½	23
Wt., Class B and C, lbs.	40	80	113	176	336
Wt., Sidelug, lbs.	47	92	125	212	343
Class B and C, each	26.50	56.50	72.50	108.50	211.50
Sidelug, each	32.00	62.00	78.00	120.00	220.00

Vesuvius Steam Traps



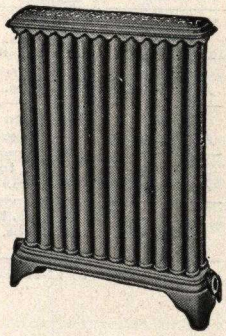
Have regrinding valve ball, insuring life and dependability at low repair cost.

Connection is made at "Inlet," outlet being closed by the ball valve B. The incoming water is received in copper tilting bucket A, so balanced that when filled it tips, instantly precipitating its contents into main body of water. Quick upward impulse imparted to float C, by this discharge, removes ball from its seat, allowing a clear free way for discharge. In closing, float follows receding water level and gradually returns ball toward its seat, until a predetermined level is reached, when pressure picks up the ball and instantly seats it, thus closing orifice, until above described operation is repeated. Under overload discharge is continuous.

Class L, 1 to 50 lbs.
Class M, 50 to 150 lbs.
Class H, 150 to 250 lbs.

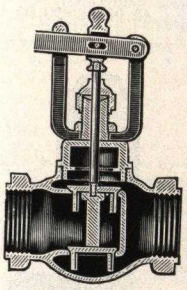
Trap No.	0	1	2	3
Pipe, Conn.	¾	1	1¼	1½ & 2
Sq. Ft. Radiation.	1600	2400	3100	4300
Ft., 1 in. Pipe	4800	7200	9300	12900
Lbs. Water per Hr.	560	830	1080	1520
Length, in.	16	17	19	23
Width, in.	8	9	11	12
Height, in.	13	14	15	16
Wt., Class L & M.	64	93	116	145
Wt., Class H.	82	112	145	177
Each, Class L & M	63.00	78.75	110.50	133.50
Each, Class H.	84.00	105.00	147.50	178.00

High Pressure Radiator



To 125 pounds, 1, 2, 3 and 4 rows wide, 4 to 32 rows long. For marine and pressure plants, 35-inch standard height, 1-foot surface per tube. Special heights to order. Three circular patterns 18, 30, 54 tubes. List per Tube $2.00.

Nason Balanced Quick Opening Valves

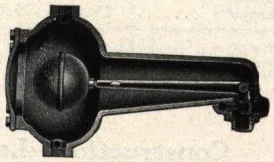


The pioneer of this type for full opening with minimum movement and positive frictionless operation, with steam, air, gas, water and other fluids in connection with automatic controlling devices, such as forced draft and temperature regulators, feed-water heaters, condensation tanks, hot wells, etc. Of Bevel Disc construction—the upper disc being the larger. Under conditions requiring extended complete closure, valve should be so connected in line that the pressure acts downward on larger seat, thereby holding valve closed. Where necessary to compensate for differential disc areas, counter weight is furnished for lever. Yoke swivels, permitting alignment of lever in any direction. Not affected by internal pressure, and therefore control must be through medium of outside force; either float, cable or diaphragm. For diaphragm operation can be furnished without yoke or lever and with spindle to suit conditions.

Size	½	¾	1	1¼	1½	2	2½	3	3½	4
Brass, Screwed		15.00	18.75	22.80	29.50	51.50	57.00	74.50	102.00	139.00
Iron Body, Screwed							57.00	74.50	102.00	139.00
Iron Body, Flanged						104.75	118.00	129.50	171.25	200.00
Brass, Union End	19.50	20.50	25.75	30.75	33.00	42.25	(2 in. only is Iron Body)			

Note—Brass Screwed Valves also made in Angle Pattern to 2 inches.

Nason Immersed Valve Feeder



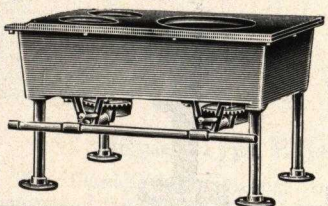
Automatically maintains water level in low pressure steam house heating boilers, affording valuable insurance. Only in this Feeder are immersion of the valve in water, allowing durability and immunity from leakage; and valve and seat removable through one opening, without disconnecting Feeder or lever. For pressures not exceeding 20 pounds steam and 40 pounds water. Feeder furnished with threaded openings on both sides, can therefore be installed on either side of boiler. Gauge extra.

Price Each	Boiler Conn.	Feed Conn.	Gauge Conn.	Length	Height	Width	Weight
$25.00	1 in.	½ in.	½ in.	23 in.	11¼ in.	7⅜ in.	48 lbs.

Steam and Gas Glue Heaters

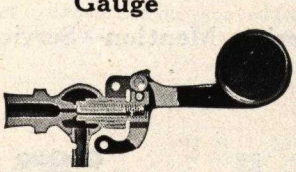
The Steam Heater is a substantial iron tank with circulating coil for live or exhaust steam. The Gas Heater is similar but fitted with gas burners.

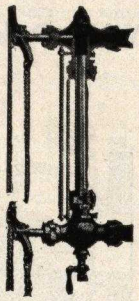
Stands extra at $5.00.



Size	No. 1	No. 2	No. 3
Cover Steam and Gas	12"x17"	17¾"x23"	17¾"x30"
Gas Heater, Height	14"	14"	14"
Steam Heater, Height	8"	9½"	9½"
Sizes and Combinations of pots for which we can supply covers for steam and gas heaters. In ordering do not combine or confuse any two lines in table.	1—6" 1—7" 1—8" 1—9" 2—5"	4—5" 6—5" 4—6" 1—12" 2—9" 1—10" & 2—5" 1—10" & 2—6" 1— 8" & 2—5" 1— 8" & 2—6"	8—5" 2—12" 1—10" & 4—6" 1—12" & 4—5" 2—10" & 2—5" 1—14" & 2—6"
Steam Heater, Each		$30.00	$48.00 $60.00
Gas Heaters, Each		22.50	34.50 43.20
Copper Pots, Each 5"	$4.00	8"	10"
6"	$5.50	9"	12"
7"	$11.25	$12.00	$13.50 $14.25 $16.50 $30.00
14"	
Capacity, Quarts	1¾ 2½ 4½	6 8 11 16 21

Olympus Gauge Cock and Quick Closing Water Gauge

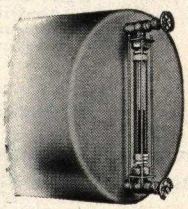




A high grade weighted type cock to 200 pounds. Valve disc of genuine Babbitt metal in pencil form with slotted head easily and quickly ground to a new seat under pressure, by simply using a screw driver to revolve pencil. Disc has one inch of wearing length and may be easily and quickly replaced at nominal cost. Body is high grade steam metal, to resist erosion. May be swiveled so spout will not throw hot water on operator. Quick closing chain water gauge to match.

Gauge Cock, ½ or ¾-inch ..... Each $ 6.50
Water Gauge, ½ or ¾-inch ..... Each 18.00

All Iron Gauge



Constructed of iron throughout. Furnished in standard length guards and glass for 16-inch centers, but can be supplied for any center required.

For ammonia and chemicals 750-pound test. Has Automatic Safety Stop, which closes if glass breaks, thus preventing escape of gas.

Pipe Thread, Inches	½	¾	1
Size of Glass, Inches	¾x16	¾x16	¾x16
Each	$10.00	$12.50	$15.00

ROSS VALVE MANUFACTURING CO., INC. TROY, N. Y.

4 Oakwood Avenue

Trojan Pressure Reducing and Relief Valves

Strainers for Water—Steam—Air—Oil

Service	Pressure	Const.	Connections	¼"	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	3½"	4"
Water Reducing	20 lbs. to 60 lbs.	B	Screwed Coupling	....	$12.50 13.50	$13.50 13.50	....	....	....	....	....	....	....	....
Water Reducing	1 lb. to 150 lbs.	B	Screwed Coupling	....	14.50 15.50	14.50 15.50	$19.50 20.50	$28.50 31.00	$34.50 37.00	....	....	....	....	....
Water Reducing	5 lbs. to 150 lbs.	E D	Flanged	.....	.....	.....	40.00	45.00	45.00	$50.00	$70.00	$90.00	$105.00	$120.00
Bal. Float Bal. Lever	....	F G	Screwed	....	14.00 11.00	14.00 11.00	18.00 15.00	24.00 20.50	30.00 26.50	42.00 38.00	60.00 56.00	75.00 70.00	85.00 80.00	95.00 90.00
Water-Steam-Air Relief	1 lb. to 200 lbs.	B	Coupling	....	7.00 9.00	8.00 10.50	..... 16.00	..... 21.00	..... 26.00	....	....	....	....	....
Water-Steam-Air Relief	1 lb. to 250 lbs.	A C	Screwed	$2.25	5.00	6.00	....	....	....	..... 36.00	..... 39.00	..... 42.00	..... 47.00	..... 54.00
Water-Steam-Air Relief	1 lb. to 200 lbs.	D	Flanged	.....	.....	.....	.....	.....	.....	50.00	70.00	90.00	105.00	120.00
Steam-Air Reducing	1 lb. to 150 lbs.	B	Screwed Coupling	....	25.00 26.00	25.00 26.00	33.00 34.00	40.00 42.00	48.00 50.00	....	....	....	....	....
Steam-Air Reducing	1 lb. to 175 lbs.	D	Flanged	.....	.....	.....	.....	.....	.....	60.00	70.00	90.00	105.00	120.00
Steam-Air Reducing	½ lb. to 15 lbs.	H	Coupling Flanged	.....	25.00	25.00	32.00	40.00	45.00	60.00	70.00	80.00	.....	95.00
Strainer	100 lbs. to 250 lbs.	I	Screwed Flanged	.....	3.50	3.50	7.25	12.00	12.00	25.00	32.00	40.00	48.00	50.00

Prices, 5-inch to 12-inch on request.

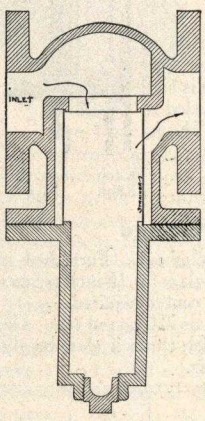
Construction—Legend

A —¼-inch to ¾-inch — Bronze — Spring Loaded.
B —Bronze-Spring Loaded Diaphragm.
C —2-inch to 4-inch C. I. Body—Bronze Mounted—Spring Loaded.
D —2-inch to 4-inch — C. I. Body — Bronze Mounted—Pilot Operated.
E —1-inch to 1½-inch—Bronze—Pilot Operated.
F —1-inch to 1½-inch—Bronze.
G —2-inch to 4-inch—C. I. Body—Bronze Mounted.
H —½-inch to 1½-inch—Bronze—Lever and Weight.
2-inch to 4-inch — C. I. Body — Bronze Mounted—Lever and Weight.
I —½-inch to 1½-inch—Bronze—2-inch to 4-inch C. I.

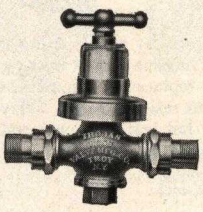


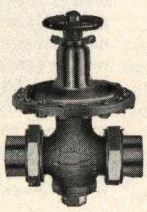
½-inch to 4-inch Relief

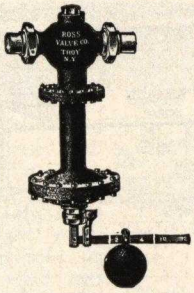
When Ordering Mention—Service—Approximate operating pressures—construction.



2-inch to 3½-inch Strainer


½-inch to ¾-inch Water Pressure Reducing

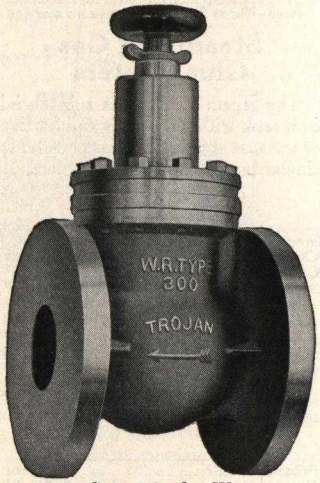

½-in. to 1½-in. Water-Steam-Air-Oil Pressure Reducing



½-inch to 4-inch Steam, etc., Pressure Reducing

Important

Regardless of variation of flow and pressure inlet side the pressure reducing valve will maintain constant discharge pressure.



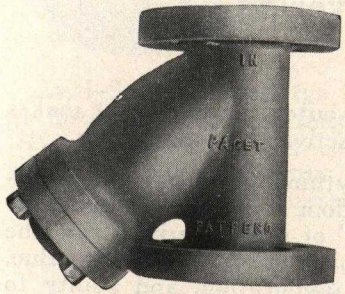
1-inch to 4-inch—Water
2-inch to 4-inch—Steam-Air-Oil
Pressure Reducing

SELF-CLEANING STRAINER COMPANY — CHICAGO, ILL.

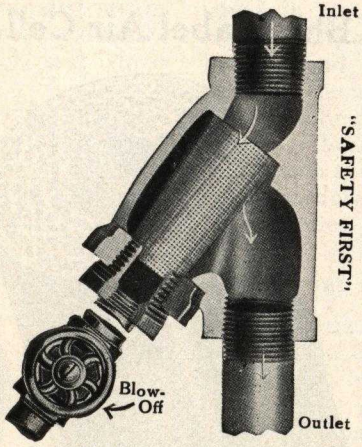
5125 South Carpenter Street

PAGET

Paget Self-Cleaning Strainers



Type A Flanged Ends Flanged Strainer Cap



Style B—Screwed Ends—Screwed Strainer Cap



Type C Screwed Ends Flanged Strainer Cap

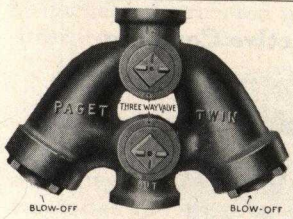
The Straitaway Self-Cleaning Strainer successfully fulfills these conditions. It protects the vital parts of the apparatus, increases the life of valves, pumps, traps, reducing valves, pressure regulators, etc. It is simple in construction, easily installed in any pipe line and is self-cleaning. May be installed on either horizontal or vertical lines. It is composed of cast iron body having a perforated brass strainer cylinder, the area of which is several times that of the inlet or outlet. The self-cleaning feature is most valuable as it permits cleaning of the strainer by simply opening the blow-off valve, without removing the strainer from the body.

The brass strainer cylinders have perforations ranging from 1/64 to 1/4-inch inclusive. Strainer cylinders having 1/64-inch perforations are furnished unless otherwise specified and are suitable for either steam, air or gas service. Strainer cylinders having 3/64-inch perforations are furnished for liquefied service unless otherwise specified.

When Ordering Strainers, Specify for What Service.

Price List

Size.....Inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	4 1/2	5	6	7	8	10	12
Style B—Screwed Ends, Screwed Strainer Cap	$2.50	$2.75	$3.00	$3.35	$3.95	$4.20	$5.00	$8.50	$11.50	$13.50	.....	.....	.....	.....	.....	.....	.....	.....
Style C—Screwed Ends, Flanged Strainer Cap	.....	.....	.....	.....	.....	.....	.....	16.00	19.00	20.00	$35.00	.....	$51.00	$59.00	.....	.....	.....	.....
Style A—Standard Flanged Ends and Strainer Cap	.....	.....	.....	.....	.....	17.00	18.00	22.00	25.00	27.00	43.00	$46.00	54.00	65.00	$96.00	$ 116.00	$ 260.00	$ 300.00
Style A—Ex. Heavy Flanged Ends and Strainer Cap	.....	.....	.....	.....	.....	19.00	19.50	23.00	27.00	30.00	46.50	48.50	58.50	68.50	99.00	118.00	265.00	310.00
Brass Cylinders	.20	.25	.35	.40	.50	.60	.85	1.00	1.30	1.40	4.00	4.25	5.00	5.50	6.50	7.50	11.00	13.50



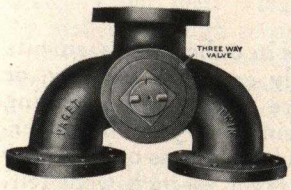
Style C—Screwed Ends Flanged Strainer Cap

Paget Twin Straitaway Self-Cleaning Strainers

The twin strainer is simple in construction and may be installed on either vertical or horizontal lines and may be used in any class of service. One of the strainer cylinders can be removed for cleaning while the other remains in service without interrupting the flow of liquid.

Price List

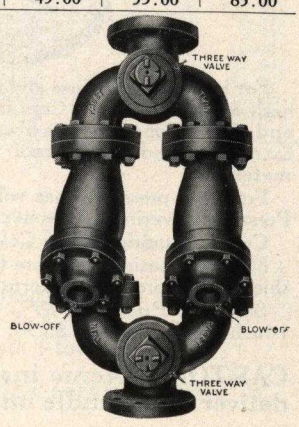
Size.....Inches	1/2	3/4	1	1 1/4	1 1/2	2	3
Style A—Extra Heavy Flanged	.....	.....	.....	.....	$49.00	$59.00	$97.00
Style A—Standard Flanged	.....	.....	.....	.....	47.00	56.00	93.00
Style B—Screw Ends, Screwed Cap	$15.00	$16.00	$23.00	$25.00	.....	46.00	73.00
Style C—Screwed Ends, Flanged Cap	.....	.....	.....	.....	45.00	53.00	85.00



Duplex Strainer Valve Type E

Duplex Type E Self-Cleaning Strainer

The Duplex Self-Cleaning Strainer is simple in construction. It consists of two Paget Flanged strainers and two Paget Type E Flanged Duplex Valves, one placed at top of strainers and the other at bottom; when these parts are bolted together they form one complete Duplex strainer. May be installed in vertical or horizontal lines and used in any class of service.



Price List

Size.....Inches	1 1/2	2	2 1/2	3	4	5	6
Duplex Strainers, Standard Flanged	$88.00	$95.00	$116.00	$155.00	$226.00	.....	.....
Duplex Strainers, Ex. Heavy Flanged	94.00	105.00	120.00	160.00	230.00	.....	.....
Duplex Strainer Valves, Std. Flanged	27.00	32.00	37.00	46.00	73.00	.....	.....
Duplex Strainer Valves, E. H. Flanged	29.00	38.00	40.00	50.00	77.00	.....	.....

ACME ASBESTOS COVERING & FLOORING COMPANY

Manufacturers of BLUE LABEL Insulations

219 North Elizabeth Street
Phone Monroe 2342

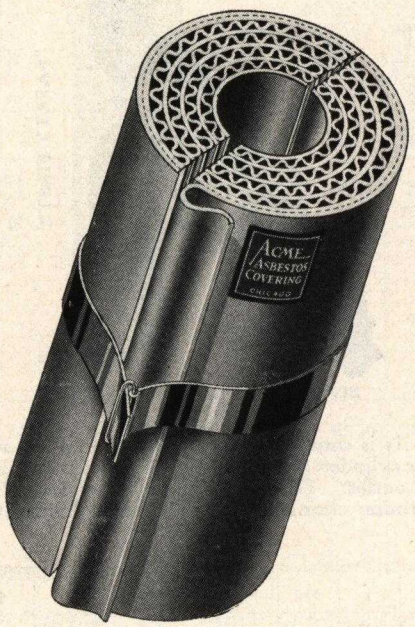
Chicago, Illinois

Acme Asbestos Blue Label Air Cell Pipe Covering

For covering and insulating pipes used for steam heating, exhaust or hot water lines.

Acme Blue Label Air Cell Covering is made from first quality, long fiber asbestos felt, built up in strongly made layers, and ply by ply anchored at all contact points with fireproof cement. The multiple cells form innumerable arches which give strength to the insulation, and accounts for the ability of Blue Label Covering to stand up in transportation, application and use.

Each 3-foot section is securely and smoothly bound with a fine asbestos wrapper, and an extra weight and quality outer canvas jacket makes an attractive protecting cover.



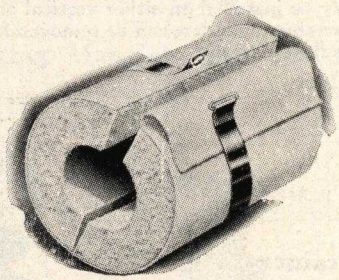
Everything possible in manufacture is done to make Blue Label the "Acme" of pipe coverings from the standpoints of high insulating value, ease of application, and ability to withstand wear and vibration in service.

Blue Label Air Cell Covering is made in several densities. Four ¼-inch plies to the inch of thickness (as illustrated) takes care of all ordinary service. Densities of six and eight plies to the inch are for moderately high pressures. All types are furnished ½-inch, ¾-inch and 1-inch or heavier, as required.

Standard Price List for Sectional Pipe Covering

Size of Pipe.....Inches	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8
List Prices.....	$0.22	$0.24	$0.27	$0.30	$0.33	$0.36	$0.40	$0.45	$0.50	$0.60	$0.65	$0.70	$0.80	$1.00	$1.10

85% Magnesia Covering and Blocks



For high pressure lines and superheated pipes; boiler and general high heat insulation. Contains 85% of pure magnesia carbonate and 15% of long asbestos fiber and fireproof binding material. An excellent standard fireproof and exceedingly efficient insulating material.

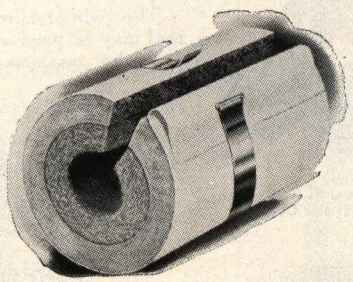
For high pressure lines subject to vibration use Climax High Pressure Covering. (See next page.)

Consult Standard Pipe Covering list above.

85% Magnesia Blocks are furnished 6 inches by 36 inches, in all thicknesses; pressures determine the thickness required.

Standard Price List 85% Magnesia Blocks—Per Square Foot 1-inch $0.30; 1¼-inch $0.38; 1½-inch $0.45; 2-inch $0.60.

Yukon Frost Protective Covering



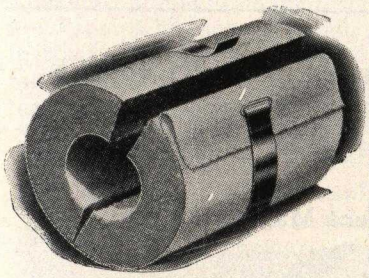
For use on exposed cold pipes in unheated basements where temperatures occasionally go below freezing, or in areaways where the exposure to cold is not lasting or intense enough to warrant using heavy double coverings. Yukon is made in 1¼-inch thickness only. Inner ¾-inch is hair felt and outer layer ½-inch wool felt. Use sheet hair felt for covering pipe fittings.

Get our recommendations for extremely low temperatures. State conditions, and size, length and kind of pipe.

CARTONS—Acme insulation is furnished in carefully sealed cartons of a size, convenient to stock, deliver and handle on jobs.

Manufacturers of BLUE LABEL Insulations

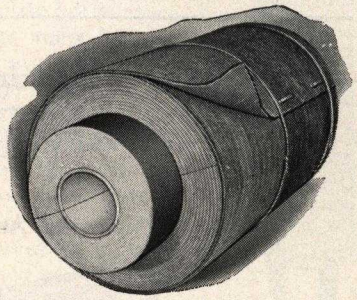
Wool Felt and Anti-Sweat Covering



Wool Felt Coverings are made of high grade wool felt lined with heavy asbestos felt, for use on hot water, or low pressure and exhaust steam lines. Immediate delivery on ½, ¾ and 1-inch thickness.

Anti-Sweat Coverings have high grade wool felt as insulation, and are lined with heavy water-proof felt. Recommended for cold water lines to prevent rusting and damage from dripping of condensation. ½, ¾ and 1-inch thicknesses always in stock.

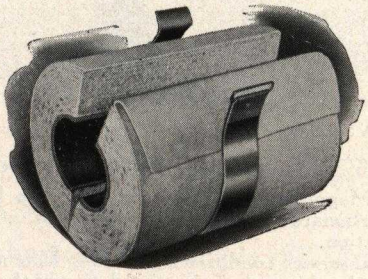
Victor Brine and Ice Water Covering



A sectional covering especially adapted for low temperature insulation, the result of long and careful experiment. It is furnished in double layers so that all joints can be broken and effectively sealed. Each section is handsomely finished in canvas and brass lacquered bands, or heavy roofing and copper ties optional.

1½-inch thickness recommended for ice water; 2-inch for brine down to 5 degrees F., and 2½-inch down to —20 degrees.

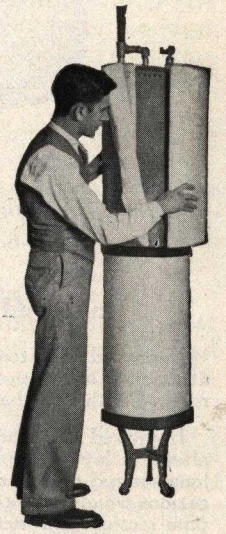
Climax High Pressure Covering and Blocks



Climax is a very dense, asbestos felt covering so constructed as to contain a multitude of tiny air pockets efficiently sealed against circulation. It is lined with a heavy vitrified core and especially designed for use in high pressure and superheat service. Climax is unaffected by rough usage or line vibration. It may be removed and reused at will without fear of injury. Furnished with heavy roofing jacket for outdoor use.

Blocks furnished 36 inches long, in any width up to 36 inches. Furnished in all thicknesses, depending on pressure. (See Standard Covering and Block List.)

Range Boiler Jackets



The application of Blue Label Asbestos Jackets or Covers to hot water tanks is a necessary measure of economy. Acme Jackets quickly pay for themselves in 30% to 40% reduction in the amount of fuel it takes to heat water and keep it hot.

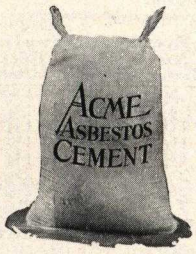
More hot water with less fuel is made possible because the efficient asbestos cover diverts all the heat into the water, prevents the heat from escaping into outer space.

Acme Range Boiler Jackets are very attractive, strongly made of full 1-inch asbestos felt, covered with heavy, smooth canvas outer protective layer, finished off with wide metal bands, making a handsome piece of equipment out of an unsightly tank.

Every Range Boiler Jacket is packed in an individual carton, together with the necessary Acme Cement for top of tank. Usual standard sizes and weights are given below. Other sizes furnished on request.

Capacity Gallons	Size Inches	Shipping Weight Pounds	List Prices
	12x40	27	$ 7.00
	12x48	29	7.00
30-gallon	12x60	35	7.50
	14x40	26	7.00
40-gallon	14x60	40	8.25
52-gallon	16x60	45	9.30
66-gallon	18x60	55	10.00
85-gallon	20x60	65	11.00
100-gallon	22x60	75	14.00
120-gallon	24x60	85	16.00
140-gallon	24x72	100	18.00

Insulating Cements



Composed of long asbestos fiber and other minerals of very low heat conductivity. For covering fittings, boilers, tanks and irregular surfaces where a formed covering is impractical. No. 10 medium grade, No. 100 high grade. Magnesia-Asbestos Cement and 85 per cent Magnesia Cement furnished for high pressure work.

Plastic Wool Cement is the one recommended for extra high pressure and superheated surfaces.

Prices on application.

Other Acme Products

Asbestos Paper, Plain and Corrugated.
Asbestos Mill Board, Sheets or Rolls.
Asbestos Wicking and Rope Packing.
"Acmobile" Sheet Packing in all thicknesses.
Gaskets, Handhole and Manhole.
Mineral Wool, Plain and Granulated.
Hair Felt, 300 sq. ft. rolls, ½, ¾, 1-inch.
Paste for Pipe Covering.
Paint, Apex Cold Water, Fireproof.
Furnace Cement.
Acmetyle Fireproof Magnesia Flooring.

Acme Blue Label Products are always shipped on a *less than 24 hour* quick service schedule.

JOHNS-MANVILLE NEW YORK, N. Y.

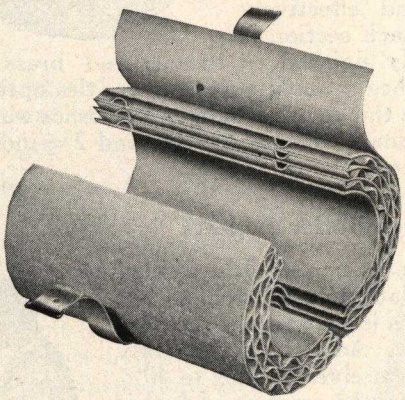
Offices in All Large Cities — Executive Offices: 292 Madison Avenue

Insulation—Packing—Transite Pipe—Lead Joint Runners—Furnace Cement

For Low Pressure Steam or Hot Water Pipes

(Sectional Insulations)

Improved Asbestocel



A Section of Johns-Manville Improved Asbestocel. Notice the convenient hinged construction, making application easy.

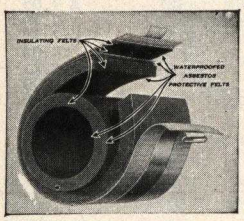
Improved Asbestocel Pipe Insulation

Improved Asbestocel is used for insulating pipe conveying steam at medium or low pressures, or hot water. For identification, it is marked with a red band on the inside of each end of every section.

Improved Asbestocel is a cellular type of insulation made up of alternate layers of plain and corrugated asbestos felts, with the longitudinal corrugations crossed at right angles by other corrugations which form a barrier to the free circulation of air along the pipe section and increase its ability to withstand vibration and wear.

The standard type of Improved Asbestocel is furnished in thicknesses of 2, 3 and 4 plies, each ply approximately ¼-inch thick. Greater thicknesses can also be furnished. It is made in 3-foot sections with canvas jacket and brass lacquered bands, to fit standard sizes of pipe. Also furnished in sheet and block form.

Anti-Sweat Pipe Insulation

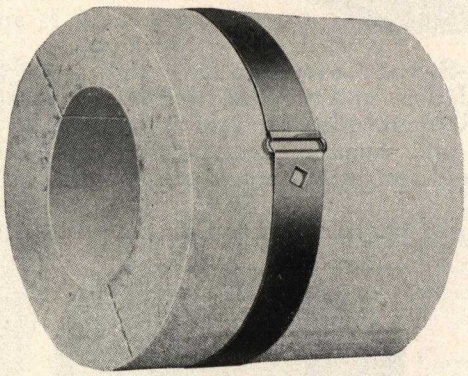


Anti-Sweat Pipe Insulation is made of laminated insulating felts, protected inside and out with waterproofing felts. Used to insulate cold water pipes and to prevent condensation. Furnished in 3-foot sections, in thicknesses of ½-inch, and ¾-inch solid construction, and 1-inch, 1½-inch and 2-inch broken joint construction to fit standard pipe sizes. Waterproofing felts also used between layers on broken joint construction.

Zero Pipe Insulation

Zero Pipe Insulation is composed of layers of hair felt and wool felt, with a layer of saturated wool felt inside to prevent the hair felt from coming in direct contact with the pipe. Used to prevent water pipes from freezing under ordinary moderate conditions. Must be weather-proofed when used outdcors. Furnished in 3-foot sections, 1¼-inch thick only, for standard pipe sizes.

85 Percent Magnesia



A Section of Johns-Manville 85% Magnesia

85% Magnesia Pipe Insulation

J-M 85% Magnesia Insulation combines the high insulating qualities of carbonate of magnesia and asbestos, affording a light, efficient insulation.

Under actual service conditions, J-M 85% Magnesia has proved to be the most durable and efficient insulation of the moulded type. The J-M manufacturing process produces an 85% Magnesia with the maximum number of voids or minute dead-air cells which increase its natural resistance to heat transmission and reduce its weight. In addition, it provides maximum mechanical strength consistent with high efficiency.

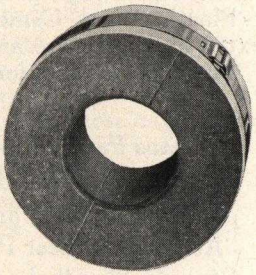
85% Magnesia Pipe Insulation is made in sections and segments 3 feet long and in the following thicknesses: Standard, 1½-inch, 2-inch, 2½-inch; Double Standard, and 3-inch (broken joint), with canvas jacket and brass lacquered bands, to fit standard pipe sizes.

The terms Standard Thick and Double Standard Thick apply **only** to 85% Magnesia Pipe Insulation. Double Standard is furnished in two layers, each layer Standard thick. The table gives actual thickness of Standard and Double Standard Thick Magnesia.

Pipe Size Inches	Standard Thick Inches	Double Standard Thick Inches	Pipe Size Inches	Standard Thick Inches	Double Standard Thick Inches	Pipe Size Inches	Standard Thick Inches	Double Standard Thick Inches
½	⅞	1¾	3½	1 1/32	2 1/16	10	1¼	2½
¾	⅞	1¾	4	1⅛	2¼	12	1½	3
1	⅞	1¾	4½	1⅛	2¼	14	1½	3
1¼	⅞	1¾	5	1⅛	2¼	16	1½	3
1½	⅞	1¾	6	1⅛	2¼	18	1½	3
2	1 1/32	2 1/16	7	1¼	2½	20	1½	3
2½	1 1/32	2 1/16	8	1¼	2½	24	1½	3
3	1 1/32	2 1/16	9	1¼	2½	30	1½	3

Also furnished in the forms of block and lagging.

Wool Felt Pipe Insulation



Wool Felt Pipe Insulation is used on hot or cold water pipes, where a low priced insulation is required. Corrugated Hot Water Wool Felt is made of alternate layers of plain and corrugated wool felt, lined with asbestos paper; Solid Hot Water Wool Felt, of laminations of wool felt, lined with asbestos paper; Cold Water Wool Felt, of laminations of wool felt, lined with waterproofing felt. All types furnished in 3-foot sections, in thicknesses of ½, ¾ and 1-inch. Solid Hot Water Wool Felt and Cold Water Wool Felt can also be furnished Double ½ and Double ¾-inch, on special order.

85% Magnesia Blocks

J-M 85% Magnesia, in block form, is one of the most efficient commercial insulations. Made of 85% carbonate of magnesia bonded with asbestos fibre. Blocks are 3-inch x 18-inch or 6-inch x 36-inch, flat or curved in thicknesses of ½-inch to 4 inches. They are used for insulating heated surfaces such as on boilers and furnaces and are usually finished with asbestos cement.



Insulating Cements

J-M Insulating Cements are composed of asbestos and other materials. They are noted for their excellent coverage, good finish and insulating properties.

They are generally used as a surface finish over block or sheet forms of insulation to seal all joints between the blocks and to provide a smooth, attractive finish or a surface to which canvas may be applied if desired. Also applied over the bare metal surfaces of house heating boilers.

J-M Cements are especially adapted for insulating irregular surfaces such as valves, flanges and other pipe fittings, heating furnaces, kettles, etc., where it would be impracticable to apply sectional insulation, sheets or blocks.

There is a J-M Cement for every insulating purpose. Detailed information on these materials will be furnished upon request.

Asbestocel (in flexible roll form)

Asbestocel (in flexible roll form) is made of a plain and a corrugated asbestos felt cemented together to an approximate thickness of ¼-inch. Used for hot-air heater or furnace pipes. At least two layers should be used. Furnished 37 inches wide, in rolls of about 250 sq. ft.

Asbestos Paper and Roll Board

Asbestos Paper and Roll Board is used where insulation of minimum thickness is required, principally as a protection against heat and as a fire-retardant between floors, walls and ceilings. Also used for wrapping hot air heater pipes. Paper is furnished in thicknesses from .015-inch to 1/16-inch. Roll Board (heavy asbestos paper) is furnished in thicknesses of 3/32-inch and ⅛-inch. Both are supplied in standard rolls, 18-inch, 24-inch and 36 inches wide, weighing 50 or 100 pounds per roll, and in special widths to order, 12-inches wide and up.

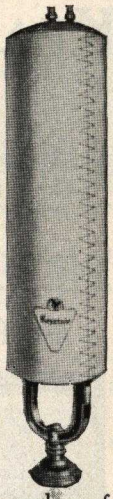
Asbestos Sheet Millboard

Asbestos Sheet Millboard is recommended where relatively thin sheets or boards are required for protection against fire, heat and acid fumes. Used as a fireproof lining for floors, partitions, ceilings and elevator shafts. Also used in ranges, stoves, gas-grate backs, etc. Made in a number of grades of various densities and fire-resisting properties. Furnished in standard sheets 42-inch x 48-inch and 1/32-inch to ½-inch thick.

Asbestos Roll Fire-Felt

Asbestos Roll Fire-Felt is soft, flexible asbestos felt that may be folded, bent or wrapped around pipes and heated surfaces. Furnished 3/32-inch, ⅛-inch, 3/16-inch and ¼-inch thick in rolls 3 feet wide, containing about 100 sq. ft.

Keystone Range Boiler Covers



Keystone Range Boiler Covers prevent waste of heat and fuel, keep the temperature of the room in which the boiler is located comfortable and help keep hot water hot when fires are low or even entirely out.

The Keystone Range Boiler Cover consists of a special asbestos lining that comes in contact with the boiler; next, an insulating hair felt of high efficiency covered with rosin-sized paper and on the outside a strong 8-ounce canvas jacket with lacing hooks that permit the cover to be applied easily and quickly. Keystone Covers are furnished to fit standard boilers or are made up special for odd sizes.

Home Insulation

J-M Home Insulation consists of special grades of Banroc (rock wool) for retarding heat flow through walls, ceilings and floors in new and existing homes. Its purpose is to keep the buildings warm in winter and cool in summer, thereby providing greater comfort with lower fuel bills. All types of Home Insulation are permanent, fireproof and vermin-proof, clean, dry and non-conductive of electricity.

In homes under construction, Triple Thick Home Insulation in bat form (Type B) is fitted snugly between studs and joists. In existing homes, Banroc Granulated Home Insulation (Type A) is pneumatically blown in to fill empty spaces between attic joists and between studs in side walls.

Lead Joint Runners

The J-M Asbestos Lead Joint Runner is the most convenient and practical device known for pouring lead joints in cast-iron gas and water pipe, or standard salt-glazed vitrified sewer pipe. It is made of specially prepared solid asbestos rope, of square cross section, having a ferrule on each end and provided with a clamp device for fastening in place on the pipe. Manufactured in various sizes to fit iron pipe ranging from 2 inch to 48 inch.

Fireite Asbestos Furnace Cement

Fireite Asbestos Cement is a plastic, readily workable, odorless paste which adheres firmly to clean castings and sheet metal. Grade SS (slow setting) is used for setting ash-pits, fire-pots, doors, dampers or other sections of furnaces, boilers, heaters and stoves, where heat is to be applied soon after application. Grade FS (fast setting) is used for sealing sections of steel radiators. Packed in 1, 2, 5, 10, 25, 50, 100, 250, 500 and 850-pound containers.

Transite Pipe

Transite Pipe is used for vents, flues and cable protection, as well as pressure lines for water, gas, and process liquors. Class "F" for vents and flues furnished in sizes from 3-inch to 12-inch. Class "S" for industrial vents and pressures up to 21 pounds furnished in sizes from 2-inch to 36-inch. Class "A," "B," "C," "D" and "E" for heads of 100, 200, 300, 400 and 500 feet, respectively, furnished in sizes from 2-inch to 36-inch.

Packings and Gaskets

The Johns-Manville line of packings has proved its dependability and economy for all types of service. Service Sheet for general requirements, Liberty Red Rubber Sheet for service water, Kearsarge Gaskets for boilers, and many others are included. Every requirement is met by some J-M product specially designed to serve the purpose.

KEASBEY & MATTISON COMPANY AMBLER, PA.

Manufacturers of Asbestos and Magnesia Products Since 1873

Branches

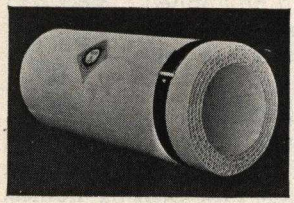
Baltimore, Md., Garrett Bldg.
Boston, Mass., 29 Farnsworth St.
Chicago, Ill., Room 823, Engineering Bldg.
Cincinnati, Ohio, 214 Elm St.
Cleveland, Ohio, 824 Hanna Bldg.
Detroit, Mich., 153 E. Elizabeth St.
Milwaukee, Wis., 410 Mariner Tower
Minneapolis, Minn., 427 Washington Ave.
New York, N. Y., 9-15 Park Place.
Philadelphia, Pa., 1001 Liberty Trust Bldg.
Pittsburgh, Pa., 311 Ross St.
Washington, D. C., 608 Mills Bldg.

West Coast Distributors

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Portland, Ore., Gillen-Cole Co., 15th and Overton Sts.

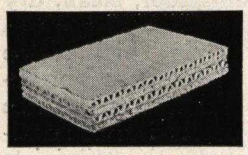
"Makers of the Best in Asbestos"

Ambler Asbestos Aircell Sectional Covering



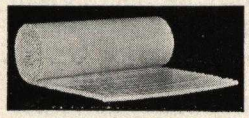
Perfectly round hard aircell covering. Superior in appearance and insulating value. Made 2 ply and up, ¼ inch to ply. Shipped loose in carload; or packed in crates or cartons. Write for Pipe Covering Catalog.

Ambler Asbestos Aircell Blocks and Sheets



Made 2 ply and up ¼ inch to the ply. Corrugations crossed to give equal strength in both directions. Smooth both sides. Made 36x36 inches, or 36x48 inches and in blocks; see weight sheet to right.

Ambler Asbestos Corrugated Paper



For hot air pipes, furnaces, ducts, etc.

Furnished in rolls of 250 sq. feet, 36 inches wide, weight 58 lbs., per roll. Corrugations ¼ inch thick.

"Featherweight" 85% Magnesia Pipe Covering and Blocks



"Featherweight" covering is very light in weight, because it is made with a binder of carded fibre of best quality. This is the standard heat insulation for temperature up to 600° F. Blocks 3x18 inches and 6x36 inches. Can be furnished in any thickness from ½ to 4 inches. See next column for list prices.

Woolfelt Sectional Covering

Furnished ½ inch, ¾ inch and 1 inch thick and telescopic (two ½ inch thick layers to be applied one over the other broken joint method). Special shapes to cover more than one pipe when close together or extra thickness sections can be furnished.

Non-Frost Sectional Pipe Covering

One half-inch woolfelt shell lined with hairfelt, as follows:

1¼ inch thk. for temperature to 10 degrees above F.
2 inch thk. for temperature to 5 degrees below F.
3 inch thk. for temperature to 15 degrees below F.

Packed same as "Ambler Asbestos Aircell."

Standard List Prices
For All Sectional Pipe Coverings and Blocks

Price per Lineal Foot Covering					Blocks	
I. D. of Pipe Inches	Standard Thick	1½ Inch Thick	2 Inch Thick	3 Inch Thick	Thickness Inches	Price Per Sq. Ft.
½	$0.22	$0.46	$0.75	$1.20	½	$0.27
¾	.24	.49	.80	1.35	¾	.27
1	.27	.52	.85	1.40	⅞	.30
1¼	.30	.56	.90	1.45	1	.30
1½	.33	.60	.95	1.55	1⅛	.34
2	.36	.64	1.00	1.65	1¼	.38
2½	.40	.70	1.05	1.75	1⅜	.42
3	.45	.76	1.15	1.90	1½	.45
3½	.50	.82	1.25	2.05	1⅝	.49
4	.60	.88	1.35	2.20	1¾	.53
4½	.65	.94	1.45	2.35	1⅞	.57
5	.70	1.00	1.55	2.50	2	.60
6	.80	1.10	1.70	2.70	2⅛	.64
7	1.00	1.20	1.85	2.90	2¼	.68
8	1.10	1.35	2.00	3.15	2⅜	.72
9	1.20	1.50	2.20	3.40	2½	.75
10	1.30	1.65	2.40	3.65	2⅝	.79
12	1.85	1.85	2.70	4.10	2¾	.84
O. D.	of Pipe					
14	2.10	2.10	3.00	4.60	2⅞	.87
16	2.35	2.35	3.30	5.10	3	.90
18	2.60	3.60	3.60	5.60	3¼	.98
20	2.85	2.85	4.00	6.00	3½	1.05
24	3.30	3.30	4.50	7.00	4	1.20
30	4.00	4.00	5.50	8.40	.....	.....

Number of Ambler Aircell Blocks or Sheets Per Case

Thickness	½ Inch	¾ Inch	1 Inch	1½ Inches
Size 6x36 Inches.....	258	174	132	90
Size 3x36 Inches.....	516	348	264	180
Size 36x36 Inches.....	43	29	22	15
Sq. Ft. Per Case.....	387	261	198	135

Approximate Shipping Weight Per Case. Any Thickness, 275 Pounds.

Size 36x48 Inches.....	43	29	22	15
Sq. Ft. Per Case.....	516	348	264	180

Approximate Shipping Weight Per Case. Any Thickness, 380 Pounds.

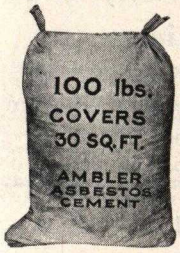
Approximate Shipping Weight Per 100 Square Feet Half Inch Thickness, 72 Pounds.

Number of 3-Ft. Sections of Aircell
Packed in Standard Cartons (Cartons Weigh 5 lbs. each)

Pipe Sizes Inches	2-Ply Sections	Gross Weight	3-Ply Sections	Gross Weight	4-Ply Sections	Gross Weight
½	56	59	38	53	24	56
¾	46	54	32	52	24	54
1	39	52	28	52	20	50
1¼	32	48	23	51	16	41
1½	28	46	20	47	14	41
2	18	36	15	42	11	41
2½	15	45	12	36	8	34
3	11	34	9	32	6	29
*3½	14	36	12	37	9	42
*4	12	35	9	38	7	37
*5	8	30	7	35	6	36
*6	7	39	5	30	4	30

Sizes Marked * are Shipped Knocked Down.

Insulating Cements



Ambler Asbestos Cement

Packed in 100 lb. bags having a covering capacity of 30 to 35 sq. ft. per bag. Harmless to hands. Insulation value double that of any ordinary asbestos cement.

Velvet Hardfinish Asbestos Cement

Waterproof for finishing and stack and breeching lining. 100 lb. bags. Covering capacity 24 sq. ft. per bag. Finished surface glossy and hard.

"Bell" Asbestos Cement

High grade asbestos insulating cement comparable with the best in the market. Capacity 30 sq. ft. per 100 lb. bag. Insulation value high.

Hairfelt

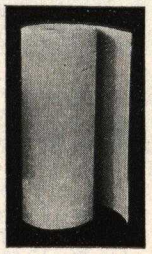
Burlaped roll 36 and 72-inch wide 150 and 300 sq. ft. respectively.

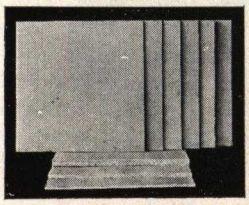
1-inch—12 oz. per sq. ft.—List Price 16 cents per sq. ft.

Ambler Asbestos Paper

Wt. per 100 Sq. Ft.	Thickness	No. Sq. Yds. Per 100 Lbs.
6 Lbs.	.016 Inches	185 Sq. Yd.
8 Lbs.	.021 Inches	139 Sq. Yd.
10 Lbs.	.025 Inches	111 Sq. Yd.
12 Lbs.	.033 Inches	92 Sq. Yd.
14 Lbs.	.037 Inches	79 Sq. Yd.
16 Lbs.	.041 Inches	67 Sq. Yd.
32 Lbs.	.063 Inches	37 Sq. Yd.
45 Lbs.	3/32 Inches	222 Sq. Yd.
60 Lbs.	1/8 Inches	166 Sq. Yd.

In 50 and 100 Lb. Rolls, 18 and 36 inches wide.





Ambler Asbestos Millboard

Made in 3 grades—soft, medium and hard. Standard sheets are 42x48 inches. Shipping weight 500 lbs. to crate. Also furnished cut to sizes. Thickness 1/16 to 1 inch.

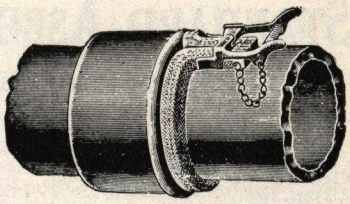
Ambler Asbestos Furnace Cement

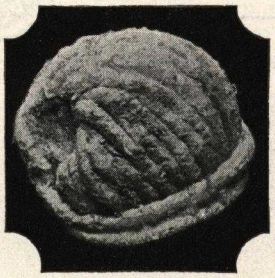
Free from gritty particles, very smooth and plastic. On account of increased plasticity, a smaller amount of the cement can be used. Very superior cement. Spreads well. The color of cement is light and is so designed to match more nearly the color of iron or steel. Easy to handle. Packed in 1, 2, 5, 10 and 25-lb. cans and 800-lb. barrels.



Lead Joint Runners

Fine quality solid hard braid with brass errules and malleable clamp. Special catalog on request.





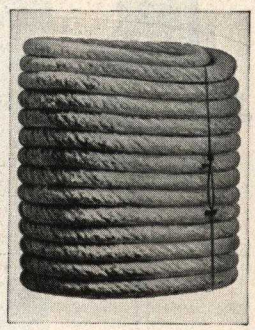
Ambler Asbestos Spun Wick (Style No. 381) Packing

Furnished in 1/4, 1/2 and 1-lb. balls and 25 and 50-lb. reels. 1/4-inch size runs 40 ft. to lb. Prices on application.

Ambler Asbestos Twisted Rope (Style No. 367) Packing

Unaffected by heat, constant friction or oil.

Furnished from 3/8 to 2 inches diameter, in 25 and 50-lb. coils. 1/2 inch equals 10 feet to lb.; 3/4 inch equals 5 feet to lb., 1 inch equals 3.5 feet to lb., 2 inch equals .98 feet to lb.





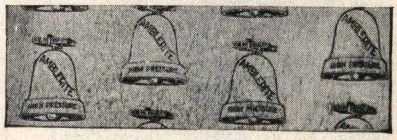
Ambler Asbestos Valve Stem Packing

Style C-100—Twisted.
Style C-101—Braided, Round.
Style C-102—Braided, Square.

Thoroughly lubricated and graphited. Will not stick, harden or char.

Furnished in 1/4, 1/2 and 1-lb. spools, and 5 and 25-lb. reels.

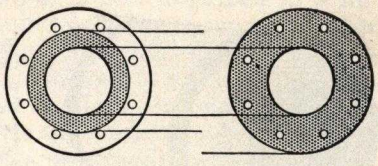
Amblerite Compressed Sheet



For gaskets, for air, water, oil, gas, acid, alkali and steam. Tough, heat resisting, economical. Sheet 50x50 inches. 1/64, 1/32, 1/16, and 1/8 inch thick. Sheet 1/16 inch thick weighs 10 lbs.

Ambler Pipe Flange Gaskets

For standard and X-heavy flanges—ring style carried in stock—full face cut to order. Special circular on request.



Ambler Floor Rings and Gaskets

All shapes and sizes made of high grade asbestos cloth. Special catalog on request.

STANDARD ASBESTOS MFG. COMPANY — CHICAGO, ILL.

Manufacturers and Contractors of Pipe Coverings for Every Condition

Branch Offices and Representatives

Cleveland, Ohio, 5808 Euclid Avenue.
Elkhart, Ind., F. W. Forward, 520 West Boulevard.
St. Louis, Mo., 2333 Pine St.

STAMCO PIPE COVERINGS

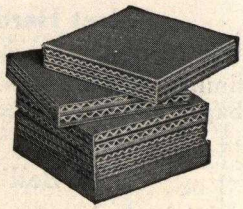
General Offices
820-822 West Lake Street, Chicago
Factories and Paper Mills
Chicago, Ill.

Products

Asbestos Air Cell Board and Coverings; Asbestos Paper and Rollboard; Asbestos Sheet Millboard; Wool Felt Coverings, Sweatproof and Frostproof; "Stamco" Laminated Asbestos Felt and Sponge Covering.

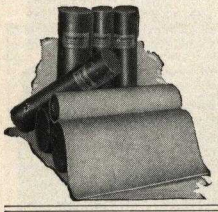
Also Asbestos Block Coverings; Brine Pipe Coverings; Ice Water Pipe Coverings; 85% Magnesia Coverings and Blocks; Breeching Coverings and Linings; Smokestack Linings; Asbestos and Magnesia Cements; Mineral Wool, Hair Felt, Hot Water Tank Coverings, etc.

Asbestos Air Cell Board



Made up of alternate layers corrugated and flat asbestos paper, firmly bound together with silicate of soda. Corrugations are 4, 6 or 8 plies to the inch; used for insulating boilers, ovens, tanks, dry kilns, etc.

Furnished in standard sheets 36x36 inches, in any thickness from ½-inch up. Special widths and lengths made to order.

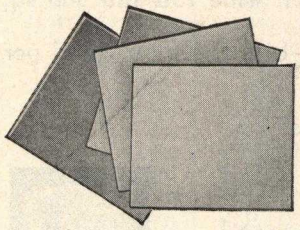


Asbestos Paper and Rollboard

Asbestos paper is used extensively for covering hot air furnace pipes and also as a general fire-retarding material on wood partitions, etc. Furnished in 50 and 100-lb. rolls, 18 or 36 inches wide, in the following weights and thicknesses:

Weight per 100 sq. ft. Pounds	Approx. Thickness Inches	Approx. sq. ft. per 100 lb.
6	.0109	1667
8	.0145	1250
10	.0181	1000
12	.0218	833
14	.0254	714
16	1/32	625
32	1/16	312
64	1/8	156

Asbestos Sheet Millboard



For general use for lining partitions, doors, etc., as a protection against fire, heat, fumes, etc.

Furnished in standard size sheets 42x48 inches (14 sq. ft.) in various thicknesses from 1/32 to ½-inch.

A standard sheet ¼-inch thick weighs approximately 18 lb.

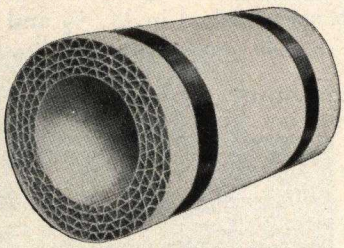
Asbestos Air Cell Coverings

These insulations are so constructed as to form very strong, medium weight coverings with high insulating qualities and make a firm, clean section, easy to apply, and give the finished job a neat appearance.

These coverings are recommended for insulating medium and low pressure steam and hot water piping, and temporary high pressure lines.

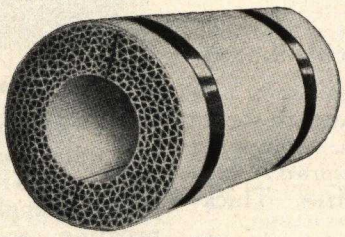
If desired, these coverings are shipped in cartons with one size to a carton, making it very easy to handle and stock. The following table gives the number of sections to each carton:

½ in., 30 sections	1½ in., 15 sections
¾ in., 26 sections	2 in., 12 sections
1 in., 22 sections	2½ in., 9 sections
1¼ in., 18 sections	3 in., 10 sections (winged)



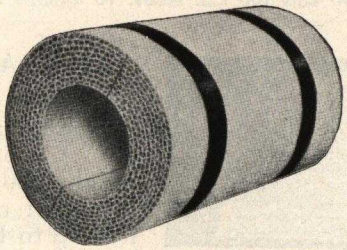
"Standard" 4-ply

Composed of alternate layers plain and corrugated asbestos paper, firmly bound together, four corrugations to the inch.



"Sixcell"

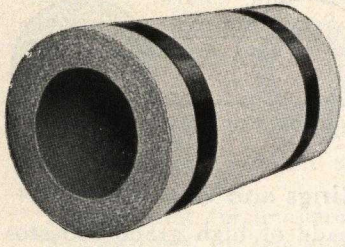
Composed of alternate layers of plain and corrugated asbestos paper, firmly bound together, six corrugations to the inch.



"Stanocel"

Composed of alternate layers plain and corrugated asbestos paper, firmly bound together, eight corrugations to the inch.

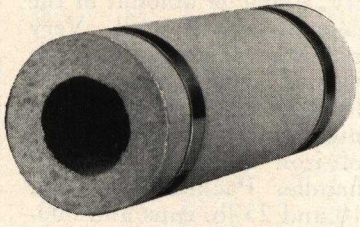
"Standard" Wool Felt Coverings



Made up with an inner lining of tarred felt for insulating cold water, soil, waste pipes, etc., to prevent sweating in warm weather and freezing in cold weather and for soundproofing. Manufactured in ½, ¾ or 1-inch thickness.

Also made up in special thicknesses and constructions for drinking water, exposed piping and extraordinary conditions.

"Stamco" Laminated Asbestos Felt and Sponge Covering



For covering high pressure and medium pressure steam lines. Especially adapted for vibrating lines or pipes running out-of-doors. Composed of successive layers of asbestos paper with a sponge-like material imbedded into and forming part of the felt itself so as to provide maximum insulating value.

Manufactured in standard 3-ft. sections, from 1 to 3 inches thick, and can be furnished with a roofing jacket for out-of-doors.

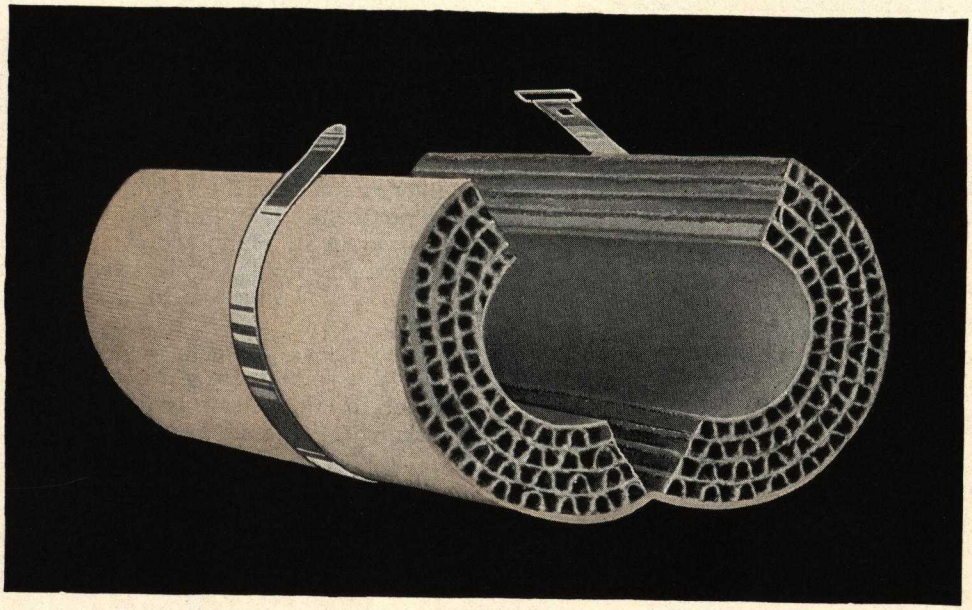
NORRISTOWN MAGNESIA & ASBESTOS COMPANY

HOME OFFICES AND FACTORIES AT NORRISTOWN, PENNSYLVANIA

Complete Stocks of Norristown Asbestos Products are carried in the following cities:

Charlotte Supply Co. ..... Charlotte, N. C.
Claxton Asbestos Co. ..... Buffalo, N. Y.
Delaware Elec. & Supply Co. .. Wilmington, Del.
George V. Hamilton Co. ..... Pittsburgh, Pa.
Edward R. Hart Co. ..... Canton, Ohio
Krewson Asbestos Co. ..... Philadelphia, Pa.
McLaughlin Asbestos Co. .... Indianapolis, Ind.
Philadelphia Asbestos Co. .... Philadelphia, Pa.
P. M. Taft Asbestos Co. ..... Holyoke, Mass.
Wallace & Gale Co. ..... Baltimore, Md.
John Wood Mfg. Co. ..... Richmond Hill, L. I.
John Wood Mfg. Co. ..... Detroit, Mich.
Grant Wilson, Incorporated ..... Chicago, Ill.
Atlas Asbestos Co., Ltd. ..... Montreal, Canada
Southwest Insulation & Packing Co. Dallas, Texas
Eagle Asbestos & Packing Co. . New Orleans, La.
John Wood Mfg. Co. ..... Boston, Mass.
Haubner Insulating Co. ..... Syracuse, N. Y.
Ohio Asbestos & Insulation Co. . Cleveland, Ohio
J. B. Lippincott Co. ..... San Francisco, Cal.
J. B. Lippincott Co. ..... Los Angeles, Cal.
J. B. Lippincott Co. ..... Seattle, Wash.
J. B. Lippincott Co. ..... El Paso, Texas
Aetna Insulations, Inc. ..... Philadelphia, Pa.

NORRISTOWN
INSULATING PRODUCTS



CELL-O-TONE

In introducing CELL-O-TONE pipe insulation the manufacturers have established a new standard of value in the low pressure insulation field. Figured on the basis of dollars and cents cost, the finished job of CELL-O-TONE insulation costs less than other standard low-pressure insulations. This is due to three labor-saving factors—not basic changes, but simplifications. First, CELL-O-TONE is hinged at the bottom (the outer casing being in one piece, thereby lessening the labor of application). Second, the outer casing, being of extra heavy asbestos felt, requires no canvas or cotton jacket (usually pasted over other types of low-pressure insulation). Third, this outer casing is toned light pink in the process of manufacture and requires no painting or other treatments.

In addition, CELL-O-TONE has these added features: The absence of starchy paste makes it practically vermin and rodent proof, also cutting down shrinkage of sections, so often found in this type of insulation. The layered, corrugated construction backs the insulating power of asbestos with another powerful insulator—dead air. The corrugations being of the "Roman Arch" type give added strength and exceptional rigidity to CELL-O-TONE. Each section is furnished with 3 black lacquered metal band applicators to secure joints. CELL-O-TONE is shipped in handy cartons to protect against damage in shipment.

CELL-O-TONE is manufactured of 1/4" layers of full weight asbestos felt paper with flat sheets of the same material in between. The illustration on this page shows the end of this material—unretouched. The outer casing is of extra heavy asbestos felt paper which is given a pleasing tint during the process of manufacture. When sections are opened for application this casing acts as a hinge. CELL-O-TONE is best described as a finished insulation and is recommended for use on pipes carrying medium or low-pressure steam, or hot water. It is available in all standard pipe sizes in 3/4 inch and 1 inch thicknesses.

For fittings use Norristown's new asbestos plastic insulation toned to match.



This carton insures against wastage of material—no trimming of broken ends—no cutting out of crushed portions of a section—and the material reaches the job as clean as when it left the factory. Cartons contain about enough sections of a size to insulate the average residence; necessary bands for application are included.

OTHER PRODUCTS

Felt Products

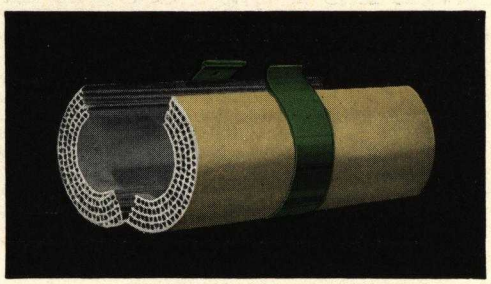
NORWOL (*Modernized Wool Felt*)
Standard Wool Felt
Anti-Sweat
Frost-Proof

85% Magnesia Products

Magnesia Covering
Magnesia Blocks
Magnesia Plastic

ROCK WOOL BULK
ROCK WOOL BLOCK INSULATION
HAIR FELT INSULATION

(See other side of this Page)



Thermo-Lux

THERMO-LUX is the aristocrat of all low-pressure pipe insulations.

It has the same general labor-saving advantages as CELL-O-TONE described in detail on the reverse side of this sheet—except that the outer casing is finished with a tough yet elastic coating of ivory-colored enamel. This coating is extremely durable and will last under ordinary conditions for many years.

Extra wide green lacquered applicators (3 to a section) are furnished with this material, adding a pleasing contrast to the finished job.

Each section of THERMO-LUX is carefully wrapped in Kraft paper and packed in cartons to protect the finish.

THERMO-LUX is designed for use on pipes carrying medium or low-pressure steam or hot water and is made in all standard pipe sizes 1″ thickness. It is light in weight, rodent and vermin proof and is more efficient than other standard insulations of similar construction.

For fittings use Norristown's new special plastic insulation colored to match.

THERMO-LUX can truly be called an economical luxury. Use it where appearances count.

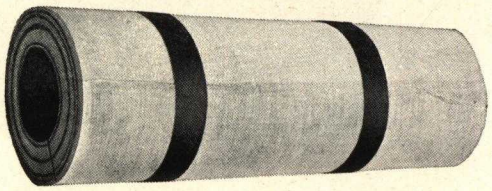
Fyr NORBESTOS Bord

Fire Proof—Not Merely Fire Resisting

The general run of wall boards are fire-resisting to a few hundred degrees, but FYR-BORD has proven in tests to be unaffected by temperatures of 1700° F. Therefore, FYR-BORD offers absolute protection against fire hazards in practically all residences, public buildings and industrial plants.

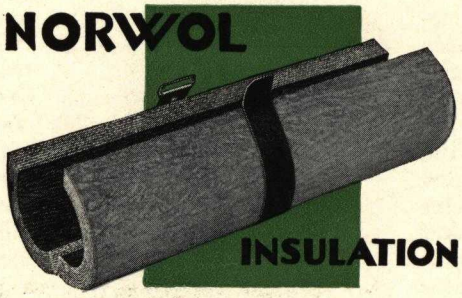
FYR-BORD actually improves with age. It cannot rust, rot or corrode and offers high resistance to acid fumes and atmospheric conditions. No vegetable binders are used in its manufacture; therefore, it is vermin and rodent proof. It is sufficiently resilient to be nailed, drilled or sawed in any direction and is crack proof.

Gray in color—one side rough for plastering and the other side smooth for painting or papering. Securely packed in crates—standard sheet, 7′ 6″ x 4′—write for further particulars.



Norristown Anti-Sweat

The body is made up of a half inch of fine wool felt, two layers of asphalt-saturated asbestos paper and another half inch of wool felt. Exteriorly the seam or longitudinal joint is sealed with a heavy lap with an overhang of at least three inches. This lap, which is a continuation of the outer layers, is made up of alternating layers of deadening felt and asphalt-saturated asbestos paper. Over all is a finish of cotton drilling. Such construction assures maximum insulation for cold water lines and also assures protection from dripping and sweating pipes.



You can use NORWOL with the same confidence that you have in ordinary wool felt insulation. Modernization has retained all the time proven reliability of wool felt and has added to its performance. Modernization includes (1) a special waterproof "wave structured" outer casing, finished in rich aluminum—making NORWOL mothproof and adding years to its insulation life—and eliminating the necessity of applying a canvas jacket or painting. (2) Universal liner, making all sections applicable to both hot and cold water work. (3) One-piece outer casing hinged at the bottom, permitting easy application.

We also manufacture standard wool felt, which is now furnished with the new "universal liner" for both hot and cold water work. Furnished with an Asbestos backer and muslin outer casing.

Necessary bands for fastening are furnished with both materials.

ASBESTOS PRODUCTS

THERMO-LUX Pipe Insulation
CELL-O-TONE Pipe Insulation
Asbestos 2-Point Insulation (Pipe and Block)
Asbestos Air Cell Covering
Asbestos Paper
Asbestos Millboard
Asbestos Cement

NORBESTOS FYR-BORD
Asbestos Insulating Jackets for Boilers
Asbestos Board and Blocks
Asbestos Table Covers
Asbestos Corrugated Paper
Asbestos Plastic Insulation
Asbestos (High Pressure) Gaskets and Washers

Information as to sizes, prices, etc., sent upon request.

(See other side of this Page)

THE CHENEY COMPANY WINCHESTER, MASS.

BRANCH OFFICES

NEW YORK
370 Lexington Avenue

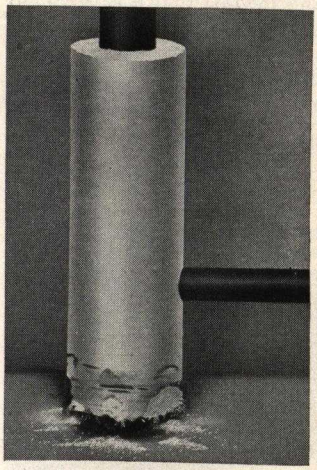
PHILADELPHIA
17th and Sansom Streets

PITTSBURGH
604 Chamber of Commerce

CHICAGO
221 North La Salle Street

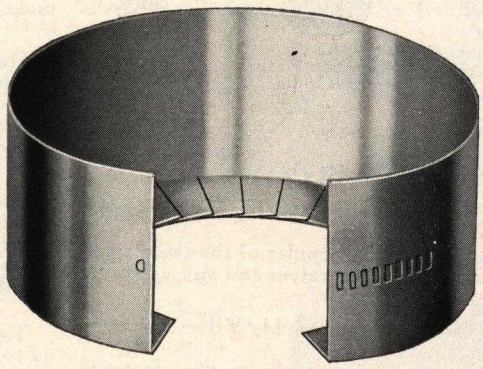
CHENEY
Trade Mark

Cheney (Royal) Pipe Covering Protector



Torn, frayed, sifting ends positively prevented

Snaps On Quickly



Protects Covering

Improves Appearance

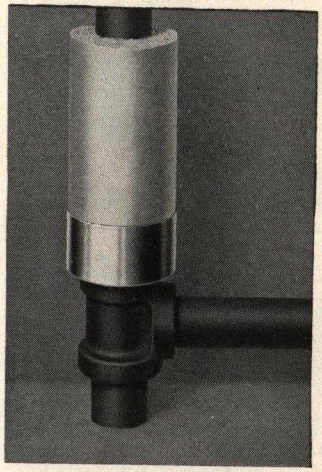
Cheney (Royal) Pipe Covering Protectors installed at Floors, Walls, Ceilings, Couplings, Valves, etc., improve the appearance of every insulated piping job 100 per cent.

This New Cheney Adjustable Protector—meets a long felt need—eliminates torn, ragged, dirty, broken and sifting ends—prevents damage from mops, brushes, vacuum cleaners—and saves time and labor costs of stitching over the ends.

They snap on quickly and easily—lock in place, will not fall off or loosen through ordinary abuse—yet are easily unfastened if removal is necessary.

The Cheney Protector is made of heavy (20 gauge) Aluminum to fit standard thick magnesia coverings with light or heavy canvas. All sizes are 2 inches high and adjustable to circumference variation of 1 inch. Special sizes to order.

Cheney Pipe Covering Protectors are being used by foremost Engineers in prominent buildings throughout the Country.



Risers certainly are improved in appearance

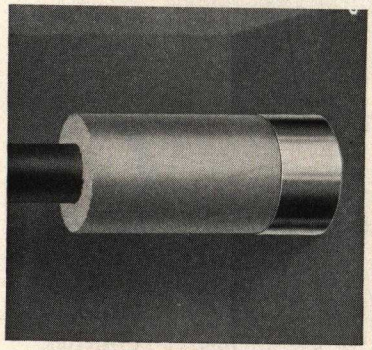
Specifications

Pipe Covering

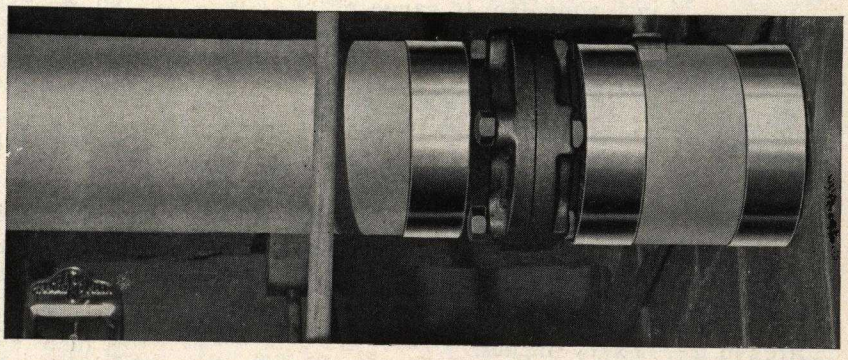
At all open ends of sections of all pipe insulation and at all insulated risers at floors and ceilings, furnish and install Cheney (Royal) Aluminum Pipe Covering Protectors as manufactured by The Cheney Co., Winchester, Mass.

Cheney Protector Dimensions

Nominal Pipe Size.....	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8
Average Diameter (Inches).	2.5	2.8	3.1	3.4	3.65	3.9	4.65	5.2	5.75	6.3	7.0	8.0	9.2	11.4



Makes a neat job at walls



Actual installation—flange coupling—compare this smart finished appearance with the ordinary job

JOHN G. KELLY, INC. NEW YORK, N. Y.

210 East 45th Street

Four-In-One Valve Handle

An Excellent Replacement Seller—
Fits All Popular Sizes of Radiator, Globe, and Gate Valves—Attractively Packed and Priced.
Display Sells Itself—Affords Carrying a Minimum Package Stock



Bottom View of Handle with Steel Plate Removed



Turn Plate to Desired Size Opening



Replace Plate in Handle



Mount Handle on Valve Stem

Patented 10-27-31

Made in Three Styles

No. 1—2¼-inch Wheel Size for Screw Assembly Valves, for ¼, 9/32, 5/16 and 11/32-inch Stems.
This Handle will be found the most popular of the three types and will fit the popular sizes of radiator valves and any valves on which the handle is fastened with a screw.

No. 2—2¼-inch Wheel Size for Nut Assembly Valves, for same valve stem sizes as the No. 1.
This Handle is to be used on valves where the handle is fastened on to the valve stem by a nut and will be a popular type for globe valves, gate valves, and old style radiator valves.

No. 3—2¾-inch Wheel Size for Screw Assembly Valves, for 11/32, 3/8, 13/32 and 7/16-inch Stems.
This Handle is to be used on larger sized screw assembly valves.

Fits Any Popular Size Valve

Cool

Bakelite is an insulating material. The Handle may be in a very warm place and become quite warm itself, but it does not transfer heat readily to the hand, and the fact that it is cored out underneath helps materially to keep it cool.

Attractive

The black surface has a depth of polish which gives the handle a very attractive finish and the comfortable knurl insures a good grip as well as an effective appearance.

Durable

The Handle does not crack or change shape like wood or fibre. It is strong mechanically and will stand considerable abuse.

Salable

The Handle is packed 12 to an attractive display carton, easy to stock, easy to ship, easy to handle. No need to carry large stock of assorted sized handles lying around loose.



Six Small Display Cartons Packed in One Large Counter Display Carton

JOHN H. ISERT COMPANY, INC. LOUISVILLE, KY.

1230-1234 Rowan Street

Representatives

Philadelphia, Pa.
Mitchell Love, 2401 Chestnut Street.

New York, N. Y.
Samuel Skner, 511 Fifth Avenue.

Richmond, Va.
P. C. Abbott & Co., 1112 Travelers Bldg.

Steel Products



Fig. 10

Perforated Extension Bar

No. 000—5/8 inch wide, No. 20 gauge.
No. 00—¾ inch wide, No. 18 gauge.
No. 0—¾ inch wide, No. 16 gauge.
⅞ inch wide, No. 18 gauge.
Shipped in 5 and 10-foot lengths.

No. 1— ⅞ inch wide, No. 16 gauge.
No. 2—1 inch wide, No. 14 gauge.
No. 3—1⅛ inches wide, No. 12 gauge.
No. 4—1¼ inches wide, No. 12 gauge.
No. 5—1¼ inches wide, 3/16 inch thick.
No. 6—1¼ inches wide, ¼ inch thick.

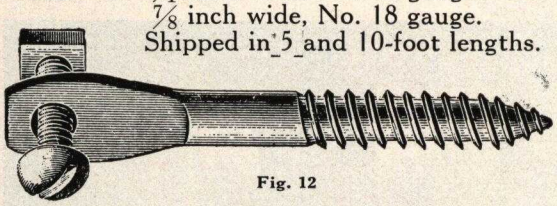


Fig. 12

Lag Screws

Flat Ends with Bolts

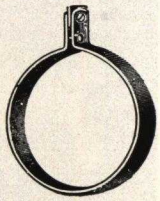
Size No. 0—¼ x 3 inches.
Size No. 1—5/16 x 3½ inches.
Size No. 2—⅜ x 4 inches.
Size No. 3—7/16 x 4½ inches.
Size No. 4—½ x 5 inches.

Fig. 11

Steel Band Rings with Bolts

For Soil or Steam Pipes

Shipped complete with rings and bolts, ready for use.



½ inch	1½ inches	3½ inches	6 inches
¾ inch	2 inches	4 inches	7 inches
1 inch	2½ inches	4½ inches	8 inches
1¼ inches	3 inches	5 inches	9 inches

Bohn Aluminum & Brass Corporation

DETROIT **CAPITOL BRASS DIVISION** MICHIGAN

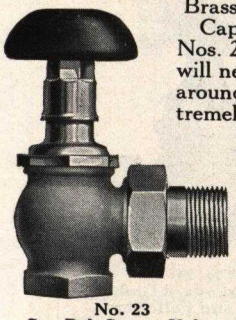
BRANCH OFFICES

CHICAGO, ILL.—109 North Dearborn Street
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LOS ANGELES, CAL.—1921-23 E. 7th St.
SEATTLE, WASH.—2315 Western Ave.

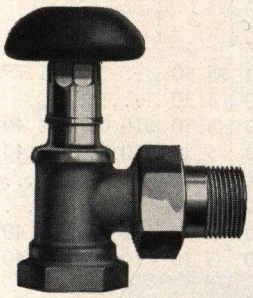
Capitol Radiator Valves

Each Capitol Radiator Valve is carefully manufactured and tested. Guaranteed against defective workmanship and materials. Rough body and polished trimmings nickel plated all over. Forged Brass Coupling Nuts.

Capitol STA-PAK Valves (Packless Type), Nos. 23, 24 and 29, are so constructed that they will never need repacking and they will not leak around the stem. The steam valves have an extremely high lift and one complete turn of the handle opens or closes the valve. The No. 24 STA-PAK Valve is a real hot water valve with the packless feature. From the standpoints of appearance, construction and service, these valves are particularly well adapted to installations in homes, hotels and office buildings.



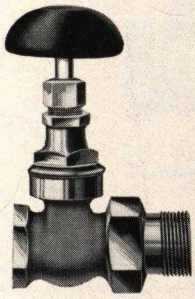
No. 23
Sta-Pak Steam Valve
(Packless Type)



No. 24
Sta-Pak Hot Water
Valve
(Packless Type)



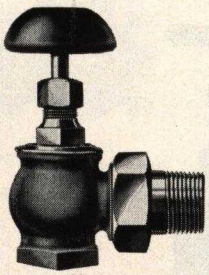
No. 29
Sta-Pak Modulating
Steam Valve
(Packless Type)



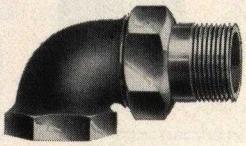
No. 256
Radiator Union Gate
Valve—Non-Rising
Stem



No. 142
Bonnetless Hot Water
Union Radiator Valve



No. 41
J. D. Steam Union
Radiator Valve



No. 52
J. D. Steam Union
Corner
Radiator Valve

No. 152—Union Elbow

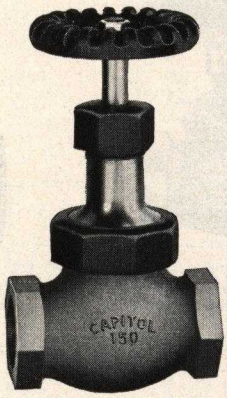
List Prices

Size Inches	No. 23	No. 24	No. 29	No. 41	No. 52	No. 142	No. 152	No. 256
½	$3.70	$3.25	$3.70	$3.70	$4.10	$3.25	$1.75	$3.65
¾	4.30	3.70	4.30	4.30	4.75	3.70	2.00	4.25
1	5.10	4.50	5.10	5.10	5.60	4.50	2.50	5.20
1¼	6.40	5.75	6.40	6.40	7.05	5.75	3.30	6.60
1½	8.40	7.30	8.40	8.40	9.25	7.30	4.25	9.00
2	13.60	12.00	13.60	13.60	15.00	12.00	7.20	12.80

Capitol Globe, Angle, Gate and Check Valves

Guaranteed Against Defective Workmanship and Materials

Renewable Disc
Malleable Iron Pack Nut and Union Bonnet Ring
Stem of Rod Brass
Castings of Special Bronze



No. 154
Renewable Disc Globe
Valve for 150 pounds
pressure

No. 164—Angle Valve

Disc holder slips on end of stem and complete disc can be renewed in five minutes.

Valve can be repacked under pressure when fully opened.

Rough body polished bonnet and hexes.

Malleable parts painted red.



No. 100
Standard Globe
Valve
Hard Seat

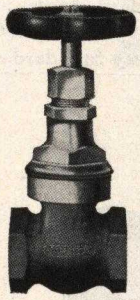
No. 150
With J. D. Seat

No. 170
With Fibre Disc
for 100 lbs. steam
working pressures

No. 110
Standard Angle
Valve—Hard Seat

No. 160
With J. D. Seat

No. 180
With Fibre Disc
for 100 lbs. steam
working pressures

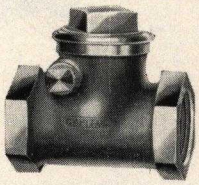


No. 200
Standard Gate
Valve
Non-Rising Stem
for 125 lbs. steam
working pressures

No. 254
Stop and Waste
Gate Valve
for 100 lbs. steam
working pressures



No. 122
Angle Check Valve
No. 120
Horizontal
Check Valve
No. 124
Vertical
Check Valve
for 100 lbs. steam
working pressures



No. 128
Standard Swing
Check Valve
for 125 lbs. steam
working pressures

List Prices

Size In.	Nos. 100 110	Nos. 120 122	No. 124	No. 128	Nos. 150, 154 160, 164	Nos. 170 180	Nos. 200	No. 254	No. 417
⅛	$0.72	.....	.....	.....	$1.10	$0.87	.....	Prices on Application. Sizes, ½ to 2 inches, incl.	Prices on Application. Sizes, ½ to 1-inch, incl.
¼	.72	.....	.....	.....	1.10	.87	.....		
⅜	.77	$0.70	.....	.....	1.25	.92	$1.45		
½	1.00	.90	$1.00	$2.00	1.60	1.15	1.65		
¾	1.25	1.15	1.26	2.25	2.20	1.46	2.05		
1	1.80	1.60	1.80	2.80	2.80	2.00	2.80		
1¼	2.52	2.25	2.52	3.65	4.00	2.77	3.70		
1½	3.50	3.15	3.50	4.25	5.50	3.75	5.00		
2	5.30	4.75	5.30	6.75	8.75	5.65	7.30		
2½	10.00	.....	.....	.....	15.75	10.50	13.00		
3	.....	.....	.....	.....	22.00	.....	19.00		

THE BELKNAP MANUFACTURING CO. BRIDGEPORT, CONN.

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BELKNAP

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Standard Globe and Angle Valves

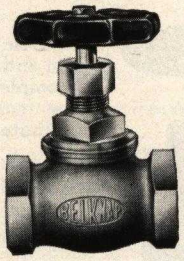


Fig. 301
Light Standard Globe
Competitive Pattern



Fig. 1
Light Standard Globe
Gland and Follower
Packed



Fig. 11
Standard Globe
Gland and Follower
Packed

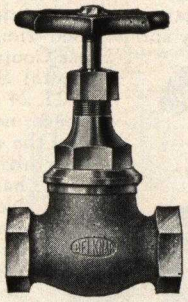


Fig. 21
Heavy Standard Globe
Gland and Follower
Packed

Fig.	Pressure	Size, Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
301	100 Pounds	Light Standard Globe	$0.72	$0.72	$0.77	$1.00	$1.26	$1.80	$2.52	$3.50	$5.30	.....	.....
302	100 Pounds	Light Standard Angle	.72	.72	.77	1.00	1.26	1.80	2.52	3.50	5.30	.....	.....
1	100 Pounds	Light Standard Globe	.72	.72	.77	1.00	1.26	1.80	2.52	3.50	5.30	$10.00	$14.40
2	100 Pounds	Light Standard Angle	.72	.72	.77	1.00	1.26	1.80	2.52	3.50	5.30	10.00	14.40
11	125 Pounds	Standard Globe	.72	.72	.77	1.00	1.26	1.80	2.52	3.50	5.30	10.00	.....
12	125 Pounds	Standard Angle	.72	.72	.77	1.00	1.26	1.80	2.52	3.50	5.30	10.00	.....
21	150 Pounds	Heavy Standard Globe	.72	.72	.77	1.00	1.26	1.80	2.52	3.50	5.30	10.00	14.40
22	150 Pounds	Heavy Standard Angle	.72	.72	.77	1.00	1.26	1.80	2.52	3.50	5.30	10.00	14.40

Standard Gate Valves

Gland and Follower Packed. Non-Rising Stems



Fig. 88
Light Standard Gate
Solid Wedge

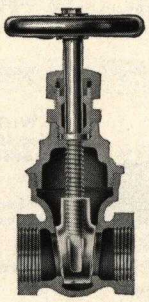


Fig. 71
Standard Gate
Solid Wedge

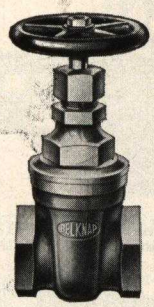


Fig. 61
Standard Gate
Double Wedge

Fig.	Pressure	Size, Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
88	100 Pounds	Light Standard Gate	$1.45	$1.45	$1.45	$1.65	$2.05	$2.80	$3.70	$5.00	$7.30	$13.00	$19.00
71	125 Pounds	Standard Gate	1.45	1.45	1.45	1.65	2.05	2.80	3.70	5.00	7.30	13.00	19.00
61	125 Pounds	Standard Gate	1.45	1.45	1.45	1.65	2.05	2.80	3.70	5.00	7.30	13.00	19.00
89	100 Pounds	Curb Box Gate	.....	.....	.....	1.65	2.05	2.80	3.70	5.00	7.30	.....	.....
62	125 Pounds	Curb Box Gate	.....	.....	.....	1.65	2.05	2.80	3.70	5.00	7.30	.....	.....
87	100 Pounds	Drainable Gate	..... Made in ¾ size only										

BELKNAP

Standard Check Valves



Fig. 3
Light Standard
Horizontal



Fig. 4
Light Standard
Angle



Fig. 5
Light Standard
Vertical



Fig. 6
Light Standard
Swing

Fig.	Pressure	Size, Inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
3	100 Pounds	Light Standard Horizontal	$0.65	$0.65	$0.70	$0.90	$1.15	$1.60	$2.25	$3.15	$4.75
4	100 Pounds	Light Standard Angle	.72	.72	.77	1.00	1.26	1.80	2.52	3.50	5.30
5	100 Pounds	Light Standard Vertical	.....	.....	.....	1.00	1.26	1.80	2.52	3.50	5.30
6	100 Pounds	Light Standard Swing	.....	1.80	1.80	2.00	2.25	2.80	3.65	4.75	6.75
23	125 Pounds	Standard Horizontal	.....	.....	.....	.90	1.15	1.60	2.25	3.15	4.75
24	125 Pounds	Standard Angle	.....	.....	.....	1.00	1.26	1.80	2.52	3.50	5.30

Renewable Composition Disc Globe and Angle Valves

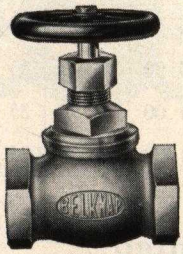


Fig. 341
Composition Disc
Globe



Fig. 41
Composition Disc
Globe
Gland and Follower
Packed



Fig. 42
Composition Disc
Angle
Gland and Follower
Packed

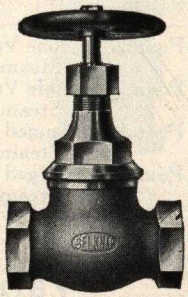


Fig. 51
Composition Disc
Globe
Gland and Follower
Packed

Fig.	Pressure	Size, Inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
341	100 Pounds	Composition Disc Globe	$1.10	$1.10	$1.25	$1.60	$2.20	$2.80	$4.00	$5.50	$8.75	.....	.....
342	100 Pounds	Composition Disc Angle	1.10	1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.75	.....	.....
41	125 Pounds	Composition Disc Globe	1.10	1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.75	$15.75	.....
42	125 Pounds	Composition Disc Angle	1.10	1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.75	15.75	.....
51	150 Pounds	Composition Disc Globe	1.10	1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.75	15.75	$22.00
52	150 Pounds	Composition Disc Angle	1.10	1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.75	15.75	22.00

Fibre Disc and Leather Disc Globe and Angle Valves for Gas and Water will be found on pages devoted to compression goods

Belknap Disc Valves—Patented

Designed for the control of air, oil and hazardous liquids. Will hold absolutely tight, benzol, gasoline, kerosene, fuel oils or circulating oils, used in conjunction with all oil immersed electrical apparatus or any other hazardous liquids. This service is not influenced by the number of times the valve is opened or closed.

Specifications

Bronze Castings with Manganese Bronze spindles. Mineral Disc, cone shaped, closing on a convex ball seat. Handsomely finished, buffed trimmings. Made in Globe and Angle, Flanged and Screwed patterns, with additional styles as illustrated for special applications.

Disc

Will not crack. Has no absorption qualities. Does not contain any rubber or sulphur. Has no adverse effect on oil or hazardous liquids.

Approved by Underwriters Laboratories of Chicago, under Types—

Globe—⅜ to 2 Inches, O3, O4, O5, O6, O7, O8, O9.
Angle—⅜ to 2 Inches, H3, H4, H5, H6, H7, H8, H9.

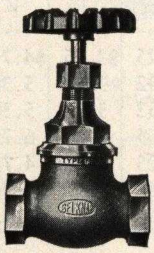


Fig. 101
Belknap Disc
Globe Valve



Fig. 102
Belknap Disc
Angle Valve

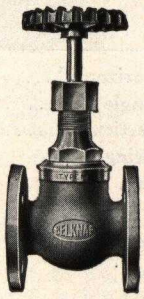


Fig. 101 F
Belknap Disc
Flanged Globe Valve



Fig. 102 F
Belknap Disc
Flanged Angle Valve

Fig.	Pressure	Size, Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
101	150 Pounds	Globe Valve—Steam or Oil	$1.10	$1.10	$1.25	$1.60	$2.20	$2.80	$4.00	$ 5.50	$ 8.75	$15.75	$22.00
102	150 Pounds	Angle Valve—Steam or Oil	1.10	1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.75	15.75	22.00
101 F	150 Pounds	Flanged Globe Valve—Steam or Oil		3.50	4.00	4.00	5.00	6.00	9.00	11.00	16.50	25.00	34.00
102 F	150 Pounds	Flanged Angle Valve—Steam or Oil		3.50	4.00	4.00	5.00	6.00	9.00	11.00	16.50	25.00	34.00

Various Styles of Belknap Disc Valves—Patented

For Special Purposes—Prices on Application

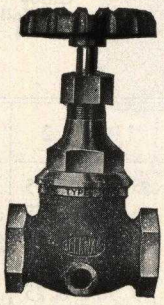


Fig. 101¼
Belknap Disc Globe with Tapped Boss Only

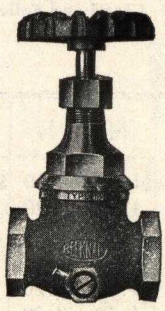


Fig. 101½
Same as Fig. 101¼, but with Sampling Device

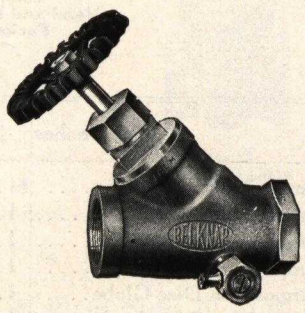


Fig. 103½
Made in 2-Inch Size Only with ⅜-inch Fig. 992 Sampling Device

Fig. 103¼
Without Sampling Device, but with Boss Tapped ⅜-inch Std. Pipe

Valves shown above made in sizes 1 to 3 inches, inclusive.
1 and 1¼ inches—Boss tapped ¼-inch Standard Pipe—Furnished with ¼-inch. Fig. 992 Sampling Device.
1½ and 2 inches—Boss tapped ⅜-inch Standard Pipe—Furnished with ⅜-inch. Fig. 992 Sampling Device.
2½ and 3 inches—Boss tapped ½-inch Standard Pipe—Furnished with ½-inch. Fig. 992 Sampling Device.

BELKNAP

Various Styles Belknap Disc Valves—Patented

For Special Purposes

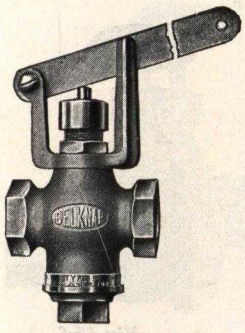


Fig. 930
Belknap Disc
Whistle Valve

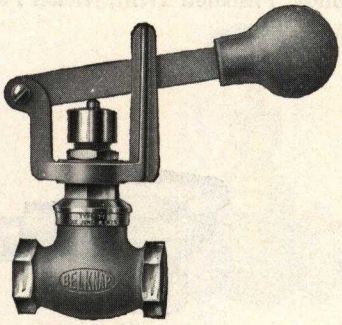


Fig. 931
Belknap Disc
Ball and Lever Safety Valve

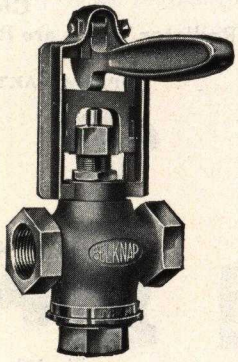


Fig. 932
Belknap Disc
Quick Opening Valve

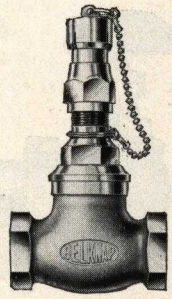


Fig. 101—With Lock Shield, Cap and Bead Chain
Key Operated

Fig.	Pressure	Size, Inches	⅜	½	¾	1	1¼	1½	2
930	150 Pounds	Whistle Valve	$4.95	$4.95	$6.10	$ 6.85	$ 9.55	$11.80	$13.70
932	150 Pounds	Quick Opening Valve		7.00	9.00	10.00	12.00	15.00	20.00
931	Ball and Lever Safety Valve		Made in fixed or adjustable pressures to specifications.						

Prices of Special Adaptations on Application.

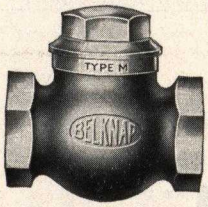


Fig. 803
Belknap Disc
Horizontal Check Valve



Fig. 804
Belknap Disc
Angle Check Valve



Fig. 805
Belknap Disc
Vertical Check Valve

Fig.	Pressure	Size, Inches	¼	⅜	½	¾	1	1¼	1½	2
803	150 Pounds	Belknap Disc—Horizontal Check Valve	$1.10	$1.20	$1.30	$1.90	$2.60	$3.60	$5.00	$7.50
804	150 Pounds	Belknap Disc—Angle Check Valve	1.10	1.20	1.30	1.90	2.60	3.60	5.00	7.50
805	150 Pounds	Belknap Disc—Vertical Check Valve			1.30	1.90	2.60	3.60	5.00	7.50

Operated by Coin or Screw Driver

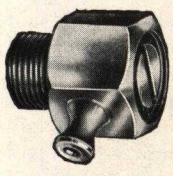


Fig. 990
Belknap Disc
Sampling Valve
Plain Nib

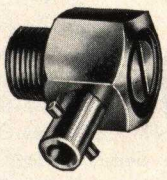


Fig. 990 A
Belknap Disc
Sampling Valve
with Connection for Metallic Hose

Operated by Protective Cap

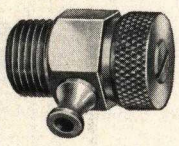


Fig. 992
Belknap Disc
Sampling Valve
Plain Nib

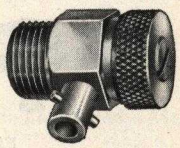


Fig. 992 A
Belknap Disc
Sampling Valve
with Connection for Metallic Hose

Made in Pipe Sizes—¼, ⅜, ½, ¾ and 1-inch. **Prices on Application.**

Belknap Radiator Valves

Gland and Follower Packed
These Radiator Valves are Rough Body, Finished Trim, Nickel Plated All Over

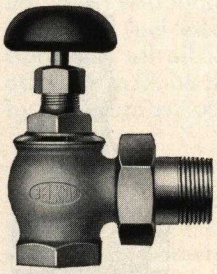


Fig. 32-6
Steam Valve

"PERMAPAKT"

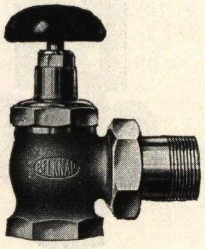


Fig. 132
Packless
Steam Valve

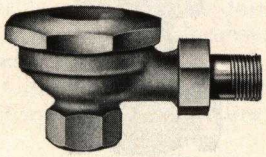


Fig. 134
Steam Trap

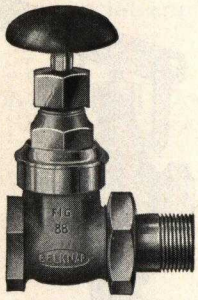


Fig. 88-6
Radiator
Gate Valve

Fig.	Size, Inches	½	¾	1	1¼	1½	2
32-6	Union Angle Steam Radiator Valves	$3.70	$4.30	$5.10	$6.40	$8.40	$13.60
132	"Permapakt" Packless Radiator Valves	3.70	4.30	5.10	6.40	8.40	.....
133	"Permapakt" Modulating Radiator Valves	3.70	4.30	5.10	6.40	8.40	.....
134	Steam Trap with Union Inlet	5.00	5.50	.....	.....	.....	.....
135	Steam Trap with 90° Union Elbow Outlet	7.00	7.50	.....	.....	.....	.....
134-5U	Steam Trap Working Unit Assembly	2.50	2.50	.....	.....	.....	.....
88-6	Radiator Union Gate—Light Pattern	3.65	4.25	5.20	6.60	9.00	12.80
61-6	Radiator Union Gate—Heavy Pattern	3.65	4.25	5.20	6.60	9.00	12.80

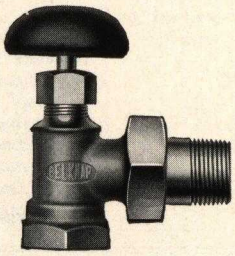


Fig. 72-6
Hot Water Valve

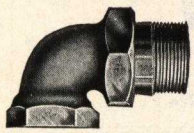


Fig. 74-6
Union Ell

Fig.	Size, Inches	½	¾	1	1¼	1½
72-6	Hot Water Union Radiator Valves	$3.25	$3.70	$4.50	$5.75	$7.30
74-6	Hot Water Union Ells	1.75	2.00	2.50	3.30	4.25

For Low Pressure House Heating Systems

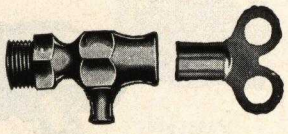


Fig. 970
Key Air Valves

Price per Dozen.....$3.00
Packed Two Dozen per Carton with Four Keys

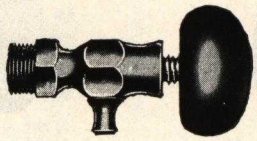


Fig. 971
Wood Wheel Air Valves

Price per Dozen.....$4.00
Packed One Dozen per Carton.



Fig. 972
Carbon Post
Automatic Air Valves

Price Each.....$1.00
Packed One Dozen per Carton.

Belknap Radiator Valves—Continued

These Radiator Valves are Rough Body, Finished Trim, Nickel Plated All Over

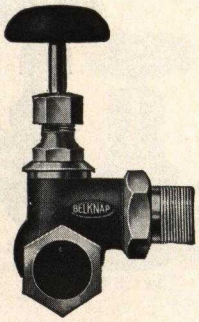


Fig. 44-6
Offset Corner Valve
125-Pound Pressure

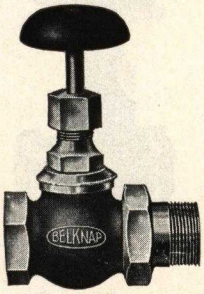


Fig. 41-6
Union Globe Rad. Valve
125-Pound Pressure

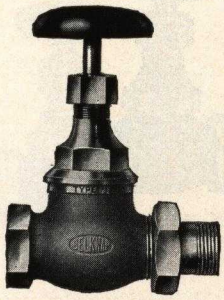


Fig. 51-6
Union Globe Rad. Valve
150-Pound Pressure

Fig.	Size, Inches	½	¾	1	1¼	1½	2
44-6	R. H. Corner Union Radiator Valve	.....	$4.75	$5.60	$7.05	$9.25	.....
45-6	L. H. Corner Union Radiator Valve	.....	4.75	5.60	7.05	9.25	.....
41-2	Globe Radiator Valve	$3.40	3.85	4.50	5.65	7.40	$12.10
41-6	Union Globe Radiator Valve	3.70	4.30	5.10	6.40	8.40	13.60
42-2	Angle Radiator Valve	3.40	3.85	4.50	5.65	7.40	12.10
42-6	Union Angle Radiator Valve	3.70	4.30	5.10	6.40	8.40	13.60
51-6	Union Globe Radiator Valve	3.70	4.30	5.10	6.40	8.40	13.60
52-6	Union Angle Radiator Valve	3.70	4.30	5.10	6.40	8.40	13.60

Hose Valves

Soft Rubber Discs
Gland and Follower Packed



Fig. 56-M-1



Fig. 56-F-3

Fig. 56-M-1 Rough Body—Iron Wheel—Male
Fig. 56-F-1 Rough Body—Iron Wheel—Female
Fig. 56-M-2 Rough Body—N. P.—Iron Wheel—Male
Fig. 56-F-2 Rough Body—N. P.—Iron Wheel—Female
Fig. 56-M-3 Finished Body—N. P.—Brass Wheel—Male
Fig. 56-F-3 Finished Body—N. P.—Brass Wheel—Female
Fig. 56-M-4 Finished Body—Brass Wheel—Polished—Male
Fig. 56-F-4 Finished Body—Brass Wheel—Polished—Female

Also Hose Globe Valves to Specifications.

Hose Gate Valves

Non Rising Stems
Gland and Follower Packed

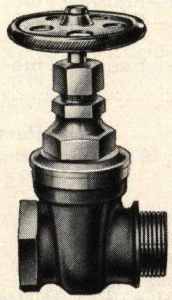


Fig. 57-M-3
Double Wedge

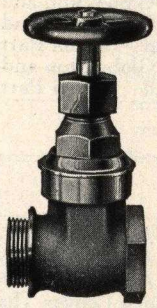


Fig. 58-M-1
Solid Wedge
Light Pattern

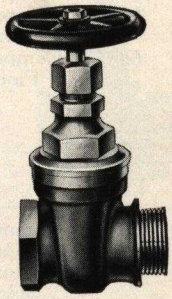


Fig. 59-M-1
Solid Wedge

Fig. 57-M-1, Fig. 58-M-1, Fig. 59-M-1 } Rough Body—Iron Wheel—Male
Fig. 57-M-2, Fig. 58-M-2, Fig. 59-M-2 } Rough Body—Nickel Plated—Iron Wheel—Male
Fig. 57-M-3, Fig. 58-M-3, Fig. 59-M-3 } Finished Body—Brass Wheel—Nickel Plated—Male
Fig. 57-M-4, Fig. 58-M-4, Fig. 59-M-4 } Finished Body—Brass Wheel—Polished Body—Male

Made in Sizes ¾ to 2½ inches, inclusive—**Prices on Application**

BELKNAP

Compression Stops and Stop and Wastes—Fibre Disc

Light Pattern—100-Pound Pressure—Blue Japanned Malleable Iron Wheels

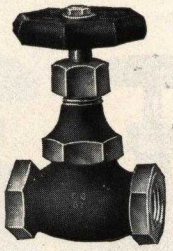


Fig. 63
Comp. Globe Stop

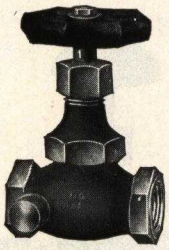


Fig. 64
Comp. Globe Stop and Waste

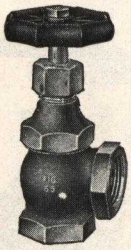


Fig. 65
Comp. Angle Stop

Light Pattern Globe Stop Valve

Fig.		Sizes			
63	Compression Globe Stop Valve—Rough Hub	3/8	1/2	3/4	.....
63½	Compression Globe Stop Valve—Finished Hub	3/8	1/2	3/4	1
67	Compression Globe Stop Valve—Rough Hub—Fine Thread—Boston Pattern	.....	.....	3/4	.....
67½	Compression Globe Stop Valve—Finished Hub—Fine Thread—Boston Pattern	.....	.....	3/4	.....
69	Compression Globe Stop Valve—Rough Hub—Spindle 1 Inch Longer Than Regular—L. I. Pattern	.....	1/2	3/4	.....
69½	Compression Globe Stop Valve—Finished Hub—Spindle 1 Inch Longer Than Regular—L. I. Pattern	.....	.....	.....	1
79	Compression Globe Stop Valve—Rough Hub—Spindle 1 Inch Longer Than Regular—Fine Thread	.....	.....	3/4	.....
79½	Compression Globe Stop Valve—Finished Hub—Spindle 1 Inch Longer Than Regular—Fine Thread	.....	.....	3/4	.....

Light Pattern Globe Stop and Waste

Fig.		Sizes			
64	Compression Globe Stop and Waste—Rough Hub	3/8	1/2	3/4	.....
64½	Compression Globe Stop and Waste—Finished Hub	3/8	1/2	3/4	1
68	Compression Globe Stop and Waste—Rough Hub—Fine Thread—Boston Pattern	.....	.....	3/4	.....
68½	Compression Globe Stop and Waste—Finished Hub—Fine Thread—Boston Pattern	.....	.....	3/4	.....

Light Pattern Angle Stop

Fig.		Sizes			
65	Compression Angle Stop Valve—Rough Hub	.....	1/2	3/4	.....
65½	Compression Angle Stop Valve—Finished Hub	.....	1/2	3/4	.....
70	Compression Angle Stop Valve—Rough Hub—Spindle 1 Inch Longer Than Regular—L. I. Pattern	.....	1/2	3/4	.....
70½	Compression Angle Stop Valve—Finished Hub—Spindle 1 Inch Longer Than Regular—L. I. Pattern	.....	1/2	3/4	.....

Light Pattern Angle Stop and Waste

Fig.		Sizes			
66	Compression Angle Stop and Waste—Rough Hub	.....	1/2	3/4	.....
66½	Compression Angle Stop and Waste—Finished Hub	.....	1/2	3/4	.....

Light Pattern Drainable Gate

Fig.		Sizes			
87	Drainable Gate Valve (Stop and Waste)	.....	.....	3/4	.....

Compression Stops and Stop and Wastes—Fibre Disc

Heavy Pattern—125 Pounds—Gland and Follower Packed

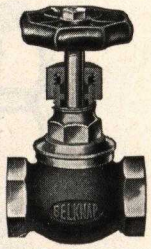

Fig. 33


Fig. 36

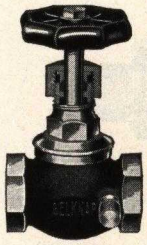

Fig. 34

Fig.		Sizes		
33	Compression Globe Stop Valve		½	¾
39	Compression Globe Stop Valve— Spindle 1 Inch Longer Than Regular—L. I. Pattern		½	¾
34	Compression Globe Stop and Waste Valve		½	¾
36	Compression Angle Stop Valve	⅜	½	¾
40	Compression Angle Stop Valve— Spindle 1 Inch Longer Than Regular—L. I. Pattern		½	¾

Fibre Disc Valves for Natural Gas and Water

Special Pattern for Natural Gas Districts
Made in Sizes ¼ to 2 Inches, Inclusive

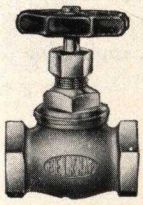

Fig. 335

Fig.		Sizes
335	100 Pounds, Compression Fibre Disc Globe Valve	¼ to 2 Inches, Inclusive Prices on Application
336	100 Pounds, Compression Fibre Disc Angle Valve	
35	125 Pounds, Compression Fibre Disc Globe Valve Gland and Follower Packed	
36	125 Pounds, Compression Fibre Disc Angle Valve Gland and Follower Packed	


Fig. 35

Leather Disc Globe and Angle Valves

Made in Sizes ¼ to 2 Inches, Inclusive

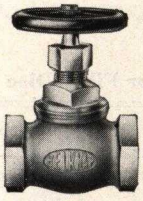

Fig. 337

Fig.		Sizes
337	100 Pounds, Compression Leather Disc Globe Valve	¼ to 2 Inches, Inclusive Prices on Application
338	100 Pounds, Compression Leather Disc Angle Valve	
37	125 Pounds, Compression Leather Disc Globe Valve Gland and Follower Packed	
38	125 Pounds, Compression Leather Disc Angle Valve Gland and Follower Packed	


Fig. 38

BELKNAP

Plumbing and Heating Specialties

Sediment Faucets

Rough Nickel Plated

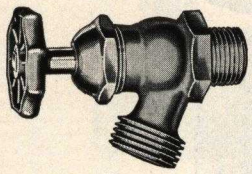


Fig. 958

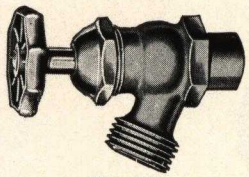


Fig. 960

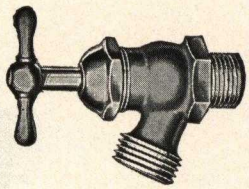


Fig. 957

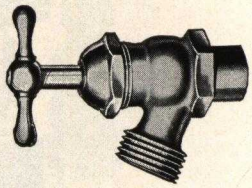


Fig. 959

Fig.	Size, Inches	½	¾
958	Sediment Faucet—Wheel Handle—Iron Pipe Male	$0.90	$1.15
960	Sediment Faucet—Wheel Handle—Iron Pipe Female	1.00	.....
957	Sediment Faucet—"T" Handle—Iron Pipe Male	.90	1.15
959	Sediment Faucet—"T" Handle—Iron Pipe Female	1.00	.....



Fig. 948

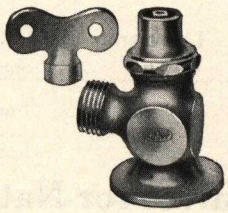


Fig. 947

Sill Faucets

Rough Nickel Plated

Fig.	Size, Inches	½	¾
948	Brass Wheel Handle	$1.50	$1.50
947	Detached Key Handle	1.50	1.50

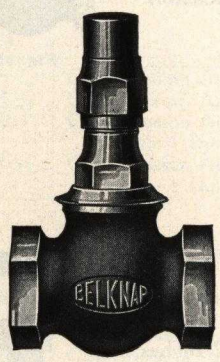


Fig. 956

Boiler Draw Offs

Belknap Patent

Size, ½, ¾ and 1-inch.
Prices on application.



Showing Lockshield Application for All Types of Valves

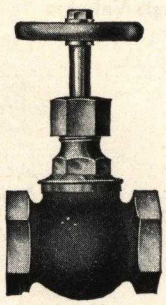


Fig. 15-G

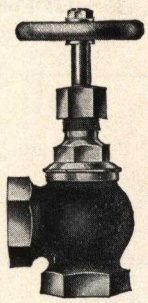


Fig. 15-A

Lavatory Valves

Polished Nickel Plated, Milled Edge Brass Wheel, Hard or Soft Seat or Fibre Disc

Fig.	Size, Inches	⅜	½	¾
15G	Price, each	$1.75	$1.95	$2.75
15A	Price, each	1.75	1.95	2.75

Heating Specialties

Water Gauges
House Heating Type

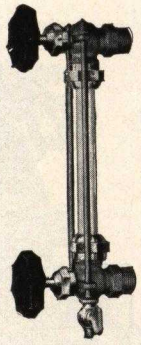


Fig. 950

Rough body, iron wheel; glass $\frac{5}{8}$x12 inches; two guards. Furnished with wood wheel when so ordered.

Size, inches	$\frac{1}{2}$
Price, each	$3.00

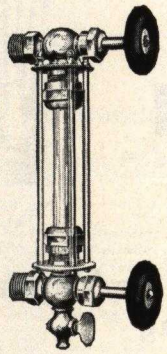


Fig. 951

Finished body, wood wheel; glass $\frac{5}{8}$x12 inches unless otherwise ordered; two guards.

Size, inches	$\frac{3}{8}$	$\frac{1}{2}$
Price, each	$3.75	$4.25

Expansion Tank Gauges



Fig. 953

With Pet Cock
Rough body, bronzed; glass $\frac{5}{8}$x12 inches; two guards.

Size, inches	$\frac{1}{2}$
Price, each	$2.60



Fig. 954

Without Pet Cock
Rough body, bronzed; glass $\frac{5}{8}$x12 inches; two guards.

Size, inches	$\frac{1}{2}$
Price, each	$2.60

Compression Gauge Cocks
Without Stuffing Box
Fig. 955

Size, inches	$\frac{3}{8}$	$\frac{1}{2}$
Price, each	$0.95	$1.00

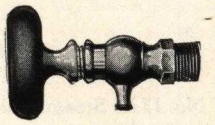


Fig. 955

Fusible Plugs
Government Standard—Short Pattern
Inside Type—Fig. 961
Outside Type—Fig. 962



Fig. 961

Size, inches	$\frac{1}{2}$	$\frac{3}{4}$	1	1$\frac{1}{4}$
Price, each	$0.60	$0.75	$1.00	$1.50



Fig. 963

Massachusetts Standard
Inside Type—Fig. 963
Outside Type—Fig. 964

Size, inches	$\frac{1}{2}$	$\frac{3}{4}$	1	1$\frac{1}{4}$
Price, each	$1.20	$1.50	.....	.....

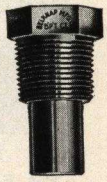


Fig. 964

Appliances for the Belknap System of Hot Water Heating

Special Literature and Discounts on Request

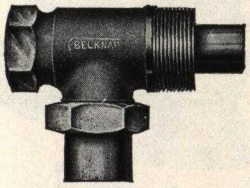


Fig. 75-6
Circulating Coupling
Regular Pattern

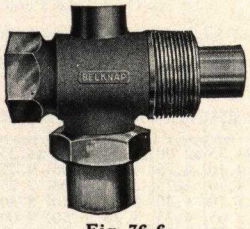
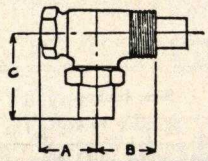


Fig. 76-6
Circulating Coupling
Expansion Tank
Pattern



Size	A	B	C	D
½"	1½	1¾	2½	1
¾"	1¾	1⅝	2¾	1¼
1 "	2	2⅛	2⅞	1½
1¼"	2⅛	2¼	3½	2
1½"	2⅛	2½	4	2

D = Size of Radiator Tapping



Fig. 77-2
Generator
List.....$18.00

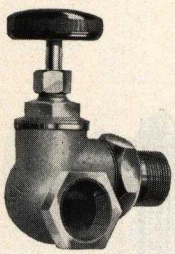
Size, Inches	½	¾	1	1¼	1½
Circulating Coupling, Regular or Expansion Tank	$2.50	$2.80	$3.70	$4.50	$5.35

COMMONWEALTH BRASS CORPORATION DETROIT, MICH.

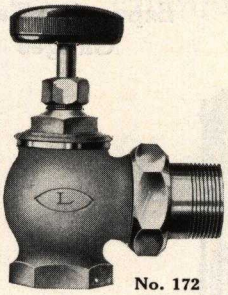
General Office and Factory—Commonwealth Avenue and G. T. R. R.

Representatives in

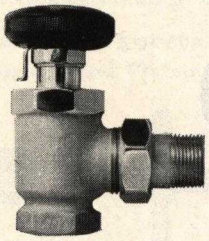
Brookline, Pa. Chicago, Ill. New York, N. Y. San Francisco, Cal.



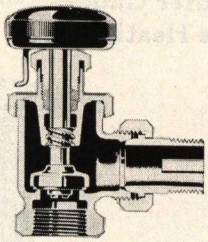
No. 432



No. 172



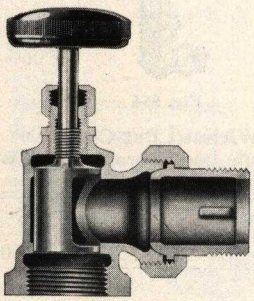
No. 681
Patent Pending



No. 681—Sectional
Patent Pending



No.433



No. 202—Sectional

Compak Radiator Valves for Vapor and Vacuum Heating

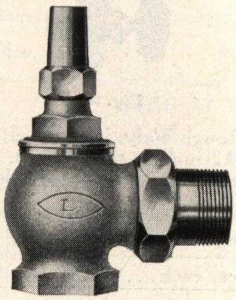
(2 Pipe Systems Only)

No. 681—Compak Radiator Valve; angle pattern, round wheel with pointer and graduated plate, with union, composition disc.

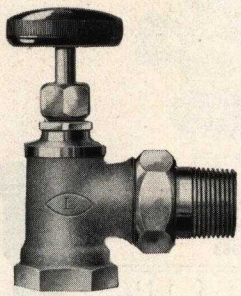
No. 683—Compak Radiator Valve, lever handle, with pointer and graduated plate; with union, composition disc.

No. 680—Compak Radiator Valve, round wheel, with union, composition disc.

No. 192—Swinging check valve, angle pattern, with union.



No. 177



No. 202
Pat. Feb. 22, 1916

Lavigne Standard Radiator Valves

No. 172—Steam radiator valve, angle pattern, screw stem, with union, composition disc.

No. 202—Hot water radiator valve, angle pattern, straight body, with union. Stem threaded just above shell to engage with similar thread in packing gland, said gland performing double function of holding shell in place, as well as raising or lowering shell when handle is moved, thereby preventing sticking. Shell and stem cast in one piece.

No. 142—Union elbow.

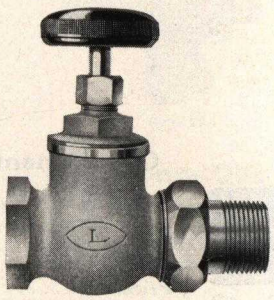
No. 432—Steam radiator valve, corner pattern, right-hand, screw stem with union, composition disc.

No. 433—Steam radiator valve, corner pattern, left-hand, screw stem with union, composition disc.

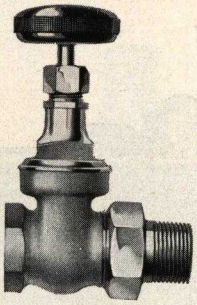
No. 572—Steam radiator valve, globe pattern, with union, composition disc.

No. 302—Radiator valve, gate pattern, for steam or hot water, with union, double brass gate and non-rising stem.

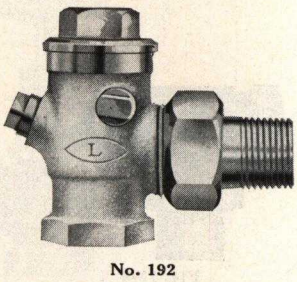
No. 177—Steam radiator valve, angle pattern, lock shield with union.



No. 572



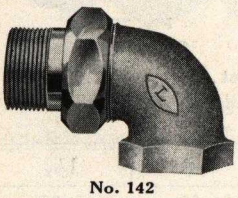
No. 302



No. 192

List Prices

No.	Size, Inches ½	¾	1	1¼	1½	2	No.	Size, Inches ½	¾	1	1¼	1½	2
681	$4.70	$5.30	$6.10	$7.40	.....	.....	142	$1.75	$2.00	$2.50	$3.30	$4.25	$ 7.20
680	3.70	4.30	5.10	6.40	.....	.....	432	4.10	4.75	5.60	7.05	9.25	15.00
683	5.20	5.80	6.60	7.90	.....	.....	433	4.10	4.75	5.60	7.05	9.25	15.00
192	3.85	.....	.....	.....	.....	.....	572	3.70	4.30	5.10	6.40	8.40	13.60
172	3.70	4.30	5.10	6.40	$8.40	$13.60	302	3.65	4.25	5.20	6.60	9.00	12.80
202	3.25	3.70	4.50	5.75	7.30	12.00	177	3.70	4.30	5.10	6.40	8.40	13.60



No. 142

Lock Shield supplied any style valve illustrated at 5% advance to the net. Nickel-plated keys, 25c each, net
The above list prices are for valves with rough body, finished trimmings, plated all over. This is the regular finish carried in stock.

All valves of our manufacture (except 2-inch) are equipped with FORGED BRASS NUTS, which eliminate the possibility of cracking or splitting. Union ends have ball joints and tail pipes are reinforced.

Moulded asbestos ring packing with metal insert is used throughout this entire line of valves.

All valves are equipped with a patented knurled handle made of a heat-resisting, durable composition. The metal follower is moulded into the handle so that the composition does not come in contact with the stem or holding screw, thus giving added rigidity at this point.

THE FAIRBANKS COMPANY NEW YORK, N. Y.

393-399 Lafayette Street

Branch Offices and Representatives:

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Chicago, Ill., Chicago Tube & Iron Co., 2531 W. 48th St.
Cleveland, O., See Pittsburgh, Pa.
Dallas, Tex., W. D. McCarty, 705 N. Bishop Ave.
Detroit, Mich., Wm. M. Quinn, 1212 Ashland Ave.
Los Angeles, Cal., M. H. Fowler, 1136 S. Harcourt Ave.
Minneapolis, Minn., Q. T. Stewart, 712 Plymouth Bldg.
Pittsburgh, Pa., A. T. Wendler, 209 Water St.
Portland, Ore., See Los Angeles, Cal.
St. Louis, Mo., G. J. Humphreys, 617 N. 2nd St.
Tulsa, Okla., Geo. W. McLean, Jr., 504 S. Gillette St.

General Distributors for Dart Union Fittings, see E. M. Dart Mfg. Co., in Manufacturers Index

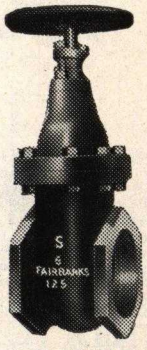


Fig. 0402

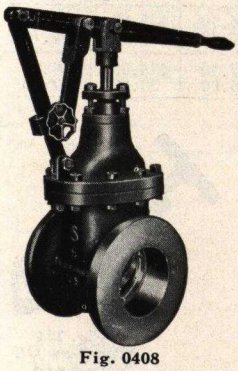
Standard Iron Body Gate Valves

Solid Wedge

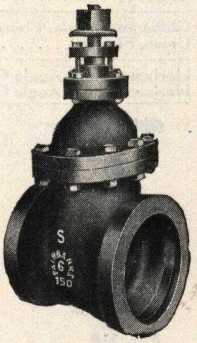
125 Pounds Steam Working Pressure — 175 Pounds Water Working Pressure

Size....Inches	2	2½	3	3½	4	4½	5	6	7
Fig. 0402, Screwed, Stationary Spindle	10.00	11.50	14.00	17.00	19.00	24.00	27.50	32.50	45.00
Fig. 0403, Flanged, Stationary Spindle	12.00	13.50	16.50	19.50	23.00	28.00	31.50	36.50	49.00
Fig. 0404, Screwed, O. S. & Y., Bronze Spindle	19.00	20.50	23.50	27.00	32.50	40.00	45.00	52.00	69.00
Fig. 0405, Flanged, O. S. & Y., Bronze Spindle	21.00	22.50	26.00	29.50	36.50	44.00	49.00	56.00	73.00
Fig. 0407, Screwed, Quick Opening	17.50	19.00	22.00	25.00	30.00	37.00	42.00	48.00	64.00
Fig. 0408, Flanged, Quick Opening	19.50	21.00	24.50	27.50	34.00	41.00	46.00	52.00	68.00
Figs. 0402, 0404 and 0407, End to End	5 7/16	5 7/8	6 1/8	6 1/2	6 7/8	7 1/4	7 5/16	7 3/4	8 1/4
Figs. 0403, 0405 and 0408, Face to Face	7	7 1/2	8	8 1/2	9	9 1/2	10	10 1/2	11

Size....Inches	8	9	10	12	14	16	18	20
Fig. 0402, Screwed, Stationary Spindle	54.00	76.00	90.00	125.00	.....	.....	.....	.....
Fig. 0403, Flanged, Stationary Spindle	58.00	81.00	95.00	133.00	181.00	260.00	350.00	425.00
Fig. 0404, Screwed, O. S. & Y., Bronze Spindle	86.00	113.00	131.00	172.00	.....	.....	.....	.....
Fig. 0405, Flanged, O. S. & Y., Bronze Spindle	90.00	118.00	136.00	180.00	255.00	350.00	470.00	565.00
Fig. 0407, Screwed, Quick Opening	80.00	.....	.....	.....	.....	.....	.....	.....
Fig. 0408, Flanged, Quick Opening	84.00	.....	.....	.....	.....	.....	.....	.....
Figs. 0402 and 0404, End to End	8 11/16	.....	9 7/8	11 5/8	.....	.....	.....	.....
Figs. 0403, 0405 and 0408, Face to Face	11½	12	13	14	15	16	17	18


Fig. 0408

Size....Inches	3	4	6	8	10	12
Figure 0406, Bell End	14.00	19.00	32.50	54.00	90.00	125.00
Face to Face	9¼	10 11/16	11¼	13	14	14½


Fig. 0406

Standard Bronze Gate Valves

Solid Wedge — Follower Gland

Steam, 125 Pounds — Water, 175 Pounds

Size....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Fig. 0205, Screwed	1.45	1.45	1.65	2.05	2.80	3.70	5.00	7.30	13.00	19.00
End to End	1 11/16	1 11/16	2	2¼	2⅝	3	3½	4	4½	15

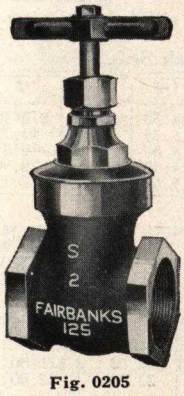


Fig. 0205

Bronze Radiator Gate Valves

Solid Wedge — Follower Gland

Steam, 125 Pounds — Water, 175 Pounds

Figure 0211—Screwed

Size....Inches	½	¾	1	1¼	1½	2
Rough Body, Nickel Plated All Over	2.40	3.00	3.85	5.00	6.60	9.65

Figure 0212—With Male Union

Rough Body, Nickel Plated All Over	3.65	4.25	5.20	6.60	9.00	12.80

Extra for Lockshields—Add to the Lists of Wood Wheel Valves

Finished and Nickel Plated	.65	.70	.85	1.00	1.20	1.70

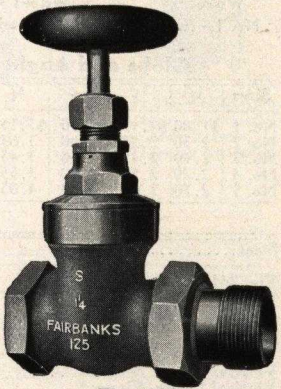


Fig. 0212½

Bronze Globe and Angle Valves

Renewable Vulcabeston Ring Disc — Follower Gland

150 Pounds Steam Working Pressure — 175 Pounds Water Working Pressure

A—Figs. 01 and 03, Screwed — B—Figs. 02 and 04, Flanged

Size....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
A	1.10	1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.75	15.75	22.00
B	.....	.....	.....	4.00	5.00	6.00	9.00	11.00	16.50	25.00	34.00

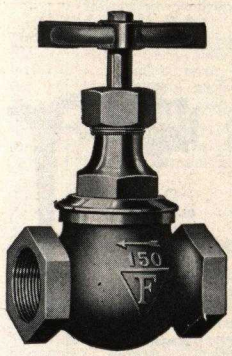


Fig. 01

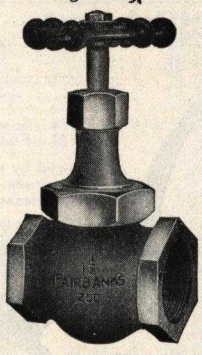
Bronze Regrinding Globe, Angle and Cross Valves

Heavy Pattern — For Working Pressures up to 200 Pounds — Follower Gland

Fig. 029 Globe, Screwed — Fig. 030 Globe, Flanged

Fig. 031, Angle, Screwed — Fig. 037 Cross, Screwed — Fig. 032 Angle, Flanged

Size....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Figs. 029, 031 Screwed	.70	.85	1.15	1.45	2.00	2.80	3.90	6.20	12.00	16.50
Figs. 030, 032 Flanged	.....	2.20	3.40	4.70	5.80	8.00	11.00	14.50	21.00	29.00
Fig. 037, Screwed	.....	1.00	1.50	2.00	2.70	3.50	5.10	8.00	16.00	24.00


Fig. 029

For Our Line of Unions See Page 521

JENKINS BROS.

Manufacturers of Valves and Mechanical Rubber Goods

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524 Atlantic Ave. Boston, Mass.
Branches
646 Washington Blvd. Chicago, Ill.
510 Main St. Bridgeport, Conn.
Jenkins Bros., Ltd.—Montreal, Can.—London, Eng.
Factories—Bridgeport, Conn.—Elizabeth, N. J.—Montreal, Can.

Jenkins Standard Bronze Valves

For 150 Pounds Steam, or 250 Pounds Oil, Water, Gas Working Pressure

With One-Piece Screw Over Bonnet and Slip-On Stay-On Disc Holder

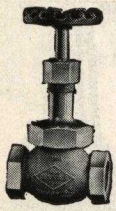


Fig. 106-A
Globe, Screwed

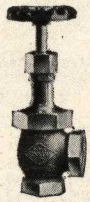


Fig. 108-A
Angle, Screwed



Fig. 110-A
Cross, Screwed



Fig. 117-A
Horizontal Check Screwed



Fig. 118-A
Angle Check Screwed

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Globe and Angle Screwed	$1.10	$1.10	$1.25	$1.60	$2.20	$2.80	$4.00	$5.50	$8.75	$15.75	$22.00
Cross, Screwed	.....	2.25	2.65	2.95	3.30	4.25	6.25	8.20	12.50	26.25	36.00
Globe and Angle, Flanged	.....	$3.50	$4.00	$4.00	$5.00	$6.00	$9.00	$11.00	$16.50	$25.00	$34.00
Cross, Flanged	.....	.....	.....	9.25	10.50	12.00	15.75	19.75	30.25	43.50	57.75
Horizontal and Angle Check, Screwed	$1.10	$1.10	$1.20	$1.30	$1.90	$2.60	$3.60	$5.00	$7.50	$14.00	$21.00
Horizontal and Angle Check, Flanged	.....	.....	.....	4.00	5.00	6.00	8.00	10.00	15.00	23.00	32.00



Fig. 310
Globe, Bronze Wheel



Fig. 311
Angle, Bronze Wheel

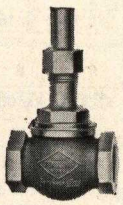


Fig. 169G
Globe, Lock Shield



Fig. 241
Quick Opening Globe, Screwed



Fig. 119
Vertical Check Screwed



Fig. 352
Swing Check Screwed

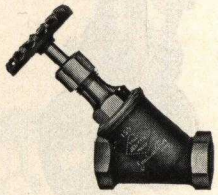


Fig. 124
Y or Blow Off Screwed

No. 1—Rough body, finished trimming. No. 2—Finished all over. No. 3—Rough body, nickel-plated trimming. No. 4—Rough body, nickel-plated all over. No. 5—Finished and nickel-plated all over.

Globe and Angle Valve with Bronze Wheels

Sizes	¼	⅜	½	¾	1	1¼	1½	2	2½	3
No. 1	$1.80	$2.15	$2.30	$3.15	$3.95	$5.30	$7.30	$11.95	$20.00	$26.50
No. 2	2.30	2.55	2.80	3.65	4.50	6.05	8.30	13.20	22.50	30.00
No. 3	2.10	2.45	2.60	3.45	4.25	5.60	7.60	12.25	20.50	27.50
No. 4	2.20	2.55	2.70	3.55	4.35	5.70	7.70	12.35	21.00	28.00
No. 5	2.70	3.00	3.20	4.05	4.90	6.45	8.70	13.60	23.00	31.00

Globe and Angle Valves with Lock Shield

Sizes.....	¼	⅜	½	¾	1	1¼	1½	2
No. 1....	$1.50	$1.85	$2.00	$2.50	$3.20	$4.50	$6.25	$10.50
No. 2....	2.00	2.25	2.50	3.00	3.75	5.25	7.25	11.75
No. 3....	1.80	2.15	2.30	2.80	3.50	4.80	6.55	10.80
No. 4....	1.90	2.25	2.40	2.90	3.60	4.90	6.65	10.90
No. 5....	2.40	2.70	2.90	3.40	4.15	5.65	7.65	12.15

Quick Opening Globe and Angle Valves

Sizes.....	½	¾	1	1¼	1½	2
Fig. 241 or 243.....	$3.00	$3.60	$4.50	$6.20	$8.20	$12.00

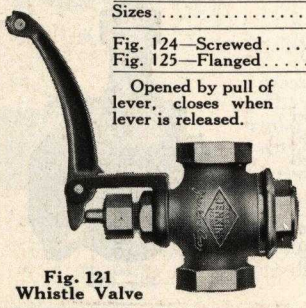
No. of turns to open							
Fig. 241....	⅞	⅞	1	1⅛	1½	1¾
Fig. 243....	1¼	1¼	1½	2	2¼	2¼

Vertical and Swing Check Valves

Sizes.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Vertical Check, Screwed	$1.10	$1.10	$1.20	$1.30	$1.90	$2.60	$3.60	$5.00	$7.50	$14.00	$21.00
Vertical Check, Flanged	.....	.....	.....	4.00	5.00	6.00	8.00	10.00	15.00	23.00	32.00
Swing Check, Screwed	.....	$1.75	$1.75	$1.90	$2.75	$3.75	$5.20	$7.20	$10.75	$20.25	$30.25
Swing Check, Flanged	.....	.....	.....	5.75	7.20	8.65	11.50	14.50	21.50	33.00	46.00

Y or Blow-Off Valves

Sizes.....Inches	⅜	½	¾	1	1¼	1½	2	2½	3
Fig. 124—Screwed	$3.00	$3.00	$4.50	$6.00	$7.50	$9.75	$14.00	$27.00	$37.50
Fig. 125—Flanged	.....	7.50	10.50	13.50	16.50	19.50	30.00	42.00	55.50



Opened by pull of lever, closes when lever is released.

Fig. 121
Whistle Valve

Sizes.....Inches	⅜	½	¾	1	1¼	1½	2
Fig. 121—Bronze quick opening self closing "Whistle" Valve	$3.50	$4.00	$5.00	$6.25	$8.00	$10.75	$15.00

Sizes.....Inches	½	¾	1	1¼	1½	2	2½
Fig. 720—Bronze Rapid Action Valve	$7.00	$9.00	$10.00	$12.00	$15.00	$20.00	$28.00



Opens with quarter pull of lever, stays open automatically. Closes quickly without water hammer.

Fig. 720
Rapid Action Valve

Jenkins Bronze Radiator Valves

These valves are primarily designed for use on radiators and heating coils, but due to sturdy construction, are equally useful for high grade plumbing. The union end type facilitates quick attachment or detachment of valve. These valves are furnished in the regular standard, or new low bonnet patterns.

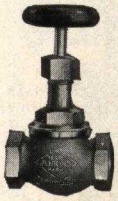


Fig. 165
Globe
Screwed



Fig. 166
Angle
Screwed

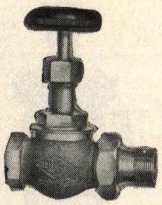


Fig. 167
Globe
Male Union

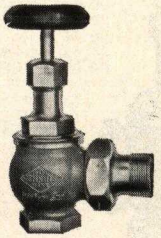


Fig. 168
Angle
Male Union



Fig. 170
Angle
Lock Shield



Fig. 853
Angle
Low Bonnet

Screwed Ends, Right or Left Hand Threads Sizes.....Inches	¼	⅜	½	¾	1	1¼	1½	2
No. 1—Rough body, finished trimmings.....	$1.50	$1.85	$2.00	$2.50	$3.20	$4.50	$6.25	$10.50
No. 2—Finished all over.....	2.00	2.25	2.50	3.00	3.75	5.25	7.25	11.75
No. 3—Rough body, nickel-plated trimmings...	1.80	2.15	2.30	2.80	3.50	4.80	6.55	10.80
No. 4—Rough body, nickel-plated all over.....	1.90	2.25	2.40	2.90	3.60	4.90	6.65	10.90
No. 5—Finished and nickel-plated all over.....	2.40	2.70	2.90	3.40	4.15	5.65	7.65	12.15
With Male or Female Unions—Sizes...Inches	¼	⅜	½	¾	1	1¼	1½	2
No. 6—Rough body, finished trimmings.....	$2.60	$2.60	$2.75	$3.50	$4.30	$5.85	$7.75	$12.60
No. 7—Finished all over.....	3.00	3.00	3.20	4.00	4.80	6.40	8.75	13.85
No. 8—Rough body, nickel-plated trimmings...	2.90	2.90	3.05	3.80	4.60	6.15	8.05	12.90
No. 9—Rough body, nickel-plated all over.....	3.00	3.00	3.15	3.90	4.70	6.25	8.15	13.00
No. 10—Finished and nickel-plated all over.....	3.45	3.45	3.60	4.40	5.20	6.80	9.15	14.25

Lock Shield Valves same price as Composition Wheel Valves, with extra charge for Keys, as listed below.

Sizes.....Inches	¼	⅜	½	¾	1	1¼	1½	2
Fig. 171—Key.....	$0.45	$0.45	$0.45	$0.45	$0.60	$0.60	$0.80	$0.80

Jenkins Bronze Gate Valves



Fig. 370—Standard Pattern, Screwed Inside Screw Stationary Spindle



Fig. 368—Standard Pattern, Screwed Outside Screw and Yoke, Rising Spindle

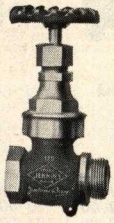


Fig. 372
Hose Gate

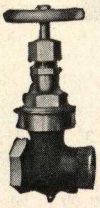


Fig. 707—Underwriters' Hose Gate Valve, with boss only
Fig. 708—With drip cock



Fig. 318
Lock Shield
Screwed

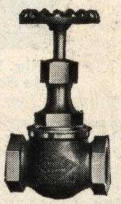


Fig. 270—Medium Pattern, Screwed Inside Screw Stationary Spindle

Standard Pattern

For 125 pounds steam working pressure, or 200 pounds oil, water, gas working pressure

Sizes.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Standard Inside Screw, Screwed, Fig. 370..	$1.45	$1.45	$1.65	$2.05	$2.80	$3.70	$5.00	$7.30	$13.00	$19.00
Standard Inside Screw, Flanged, Fig. 371..				9.00	10.25	12.00	15.00	25.00	33.00	39.00
Standard O. S. & Y., Screwed, Fig. 368....				7.50	8.50	9.70	12.00	16.30	25.00	40.50
Standard O. S. & Y., Flanged, Fig. 369....				13.20	14.00	16.00	20.00	30.00	38.50	52.00

Hose Gate without Cap and Chain—Sizes.....Inches	¾	1	1¼	1½	2	2½	3
No. 11—Rough body, finished trimmings, iron wheel.....	$2.45	$3.35	$4.70	$6.25	$9.00	$15.00	$22.00
No. 12—Rough body, finished trimmings, bronze wheel.....	3.70	5.20	6.85	8.85	12.30	18.70	27.30
No. 13—Finished all over, bronze wheel.....	5.20	6.90	9.10	11.85	17.30	26.00	38.00
No. 14—Rough body, nickel-plated all over, bronze wheel.....	4.20	5.80	7.55	9.65	13.30	19.95	29.00
No. 15—Finished and nickel-plated all over, bronze wheel.....	5.70	7.50	9.80	12.65	18.30	27.25	39.75

Underwriters' Pattern Hose Gate (with boss only), 1½-inch, $9.00; 2½-inch, $19.00. Underwriters' Pattern Hose Gate (with drip cock), 1½-inch, $10.00; 2½-inch, $20.00. Prices for Lock Shield and Hose Gate Valves with Cap and Chain on application.

For 175 pounds steam working pressure; or 300 pounds oil, water, gas working pressure.

Medium Pressure

For 175 pounds steam working pressure, or 300 pounds oil, water, gas working pressure

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Medium Inside Screw, Screwed, Fig. 270..	$2.35	$2.35	$2.75	$3.25	$4.50	$6.00	$8.00	$13.00	$20.00	$32.50
Medium Inside Screw, Flanged, Fig. 271...				10.25	12.50	16.25	21.50	31.00	45.00	67.50
Medium O. S. & Y., Screwed, Fig. 275....				8.75	10.25	12.00	15.00	22.00	32.00	50.00
Medium O. S. & Y., Flanged, Fig. 276....				16.00	18.50	22.50	29.00	40.00	58.00	86.00

See Following Page

Jenkins Approved Fire Hose Outlet Angle Valves

With Red Enameled Wheels



Fig. 715-A Screwed Inlet Hose Outlet



Fig. 719-A Screwed Inlet (Regulation iron pipe threads both ends)



Fig. 715-B Screwed Inlet Hose Outlet



Fig. 719-B Screwed Inlet (Regulation iron pipe threads both ends)

Fig. 715-A and Fig. 719-A are recommended for installation in buildings not exceeding 300 feet in height, or for the uppermost 300 feet in any building. For 150 pounds water working pressure, tested at 750 pounds.

Fig. 715-B and Fig. 719-B are recommended for installation in buildings exceeding 300 feet in height. For 250 pounds water working pressure, tested at 1250 pounds.

List Price of Valves

Fig	715A	719A	715B	719B
2½-inch size	$18.00	$18.00	$32.00	$32.00

Jenkins Standard Iron Body Valves

For 150 Pounds Steam, or 250 Pounds Water, Working Pressure



Fig. 143 Angle Screwed

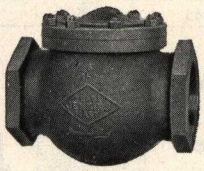


Fig. 151 Horizontal Screwed

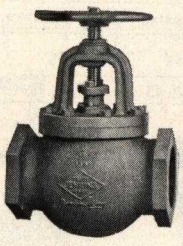


Fig. 141 Globe Screwed

Check valves in compliance with Underwriters' requirements can be supplied.

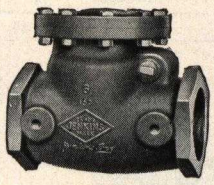


Fig. 294 Swing Check Screwed

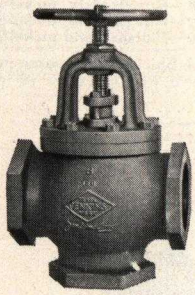


Fig. 145 Cross Screwed

Size.....Inches	2	2½	3	3½	4	4½	5	6	7	8	9	10	12
Globe Valves, Screwed, Fig. 141	$10.00	$12.00	$16.75	$ 19.50	$24.00	$ 32.00	$ 40.00	$48.00	$80.00	$90.00	$121.00	$130.00	$185.00
Angle Valves, Screwed, Fig. 143	10.00	12.00	16.75	19.50	24.00	32.00	40.00	48.00	80.00	90.00	121.00	130.00	185.00
Cross Valves, Screwed, Fig. 145	.....	30.00	40.00	50.00	56.00	79.00	84.00	109.00	170.00	188.00	.....	.....	.....
Globe Valves, Flanged, Fig. 142	11.75	14.00	18.50	21.50	26.00	34.00	42.00	50.00	80.00	90.00	121.00	130.00	185.00
Angle Valves, Flanged, Fig. 144	11.75	14.00	18.50	21.50	26.00	34.00	42.00	50.00	80.00	90.00	121.00	130.00	185.00
Cross Valves, Flanged, Fig. 146	.....	35.00	45.00	55.00	62.00	85.00	90.00	116.00	170.00	188.00	.....	.....	.....
*Horizontal Check, Screwed, Fig. 151	10.00	13.75	17.50	21.25	25.00	31.25	37.50	50.00	81.00	100.00	.....	.....	.....
*Horizontal Check, Flanged, Fig. 153	12.50	16.25	20.75	25.00	28.75	35.00	41.25	54.00	81.00	100.00	.....	.....	.....
Swing Check, Screwed, Fig. 294	22.00	22.00	25.00	32.00	37.00	.....	54.00	63.00	96.00	122.00	.....	189.00	.....
Swing Check, Flanged, Fig. 295	26.00	26.00	30.00	37.00	43.00	.....	60.00	71.00	104.00	130.00	.....	197.00	370.00

*Angle and Vertical Check Valves, same price as Horizontal Check Valves.

Jenkins Iron Body Y or Blow-Off Valves

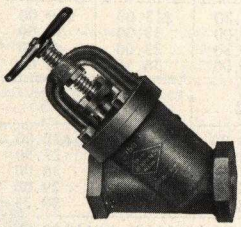


Fig. 296, Standard Y or Blow-Off, Screwed

Sizes.....Inches	2	2½	3
Standard Pattern, Screwed, Fig. 296	$16.00	$22.00	$29.00
Standard Pattern, Flanged, Fig. 297	19.00	27.00	34.00
Extra Heavy, Screwed, Fig. 336	30.00	38.00	49.00
Extra Heavy, Flanged, Fig. 337	34.00	45.00	60.00

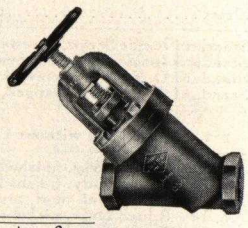


Fig. 336 Extra Heavy Y or Blow-Off Screwed

Jenkins Renewable Composition Discs

Sizes....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Fig. 223	$0.06	$0.08	$0.08	$0.10	$0.12	$0.18	$0.24	$0.36	$0.48	$0.80

Sizes....Inches	3½	4	4½	5	6	7	8	9	10	12
Fig. 223	$1.00	$1.20	$1.40	$1.60	$2.00	$2.40	$2.80	$3.60	$4.50	$5.00



Fig. 223 Composition Disc

Jenkins Renewable Steam Metal Discs

¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8	9	10	12
$ .23	$.23	$.26	$0.32	$0.36	$0.45	$0.50	$0.55	$1.00	$1.40	$2.20	$2.60	$3.25	$3.75	$4.25	$6.00	$6.50	$8.50	$9.10	$11.85

Jenkins Iron Body Gate Valves



Fig. 326
Gate Flanged
Iron Body Gate

Valves in compliance with Underwriters' requirements can be supplied.

Standard Pattern, Solid Wedge

For 125 pounds steam or 200 pounds oil, water, gas

Sizes.....Inches	2	2½	3	3½	4	4½	5
Inside Screw, Screwed, Fig. 325	$10.00	$11.50	$14.00	$17.00	$19.00	$24.00	$27.50
Inside Screw, Flanged, Fig. 326	12.00	13.50	16.50	19.50	23.00	28.00	31.50
Hub Ends, Fig. 327	.....	.....	14.00	.....	19.00	.....	.....
O. S. & Y., Screwed, Fig. 650	19.00	20.50	23.50	27.00	32.50	40.00	45.00
O. S. & Y., Flanged, Fig. 651	21.00	22.50	26.00	29.50	36.50	44.00	49.00

Sizes.....Inches	6	7	8	9	10	12	14	16
Inside Screw, Screwed, Fig. 325	$32.50	$45.00	$54.00	$76.00	$90.00	$125.00	.....	.....
Inside Screw, Flanged, Fig. 326	36.50	49.00	58.00	81.00	95.00	133.00	$181.00	$260.00
Hub Ends, Fig. 327	32.50	.....	54.00	.....	90.00	125.00	173.00	.....
O. S. & Y., Screwed, Fig. 650	52.00	69.00	86.00	113.00	131.00	172.00	.....	.....
O. S. & Y., Flanged, Fig. 651	56.00	73.00	90.00	118.00	136.00	180.00	255.00	350.00

Net prices on sizes 18 inches to 24 inches on application.



Fig. 650—Gate
Screwed
Outside Screw
and Yoke—
Rising Spindle



Fig. 327
Hub End Gate
Solid Wedge

Medium Pattern, Solid Wedge

For 175 pounds steam, or 300 pounds oil, water, gas

Sizes.....Inches	2	2½	3	3½	4	4½	5	6	7
Inside Screw, Screwed, Fig. 251	$15.00	$17.00	$20.00	$25.00	$28.00	$35.00	$40.00	$50.00	$75.00
Inside Screw, Flanged, Fig. 255	17.50	19.50	23.00	28.00	33.00	40.00	45.00	57.00	82.00
O. S. & Y., Screwed, Fig. 277	23.00	25.00	29.00	35.00	40.00	50.00	54.00	65.00	90.00
O. S. & Y., Flanged, Fig. 253	25.50	27.50	32.00	38.00	45.00	55.00	59.00	72.00	97.00

Net prices on sizes 8 inches to 12 inches on application.

Extra Heavy Pattern, Solid Wedge

For 250 pounds steam, or 500 pounds oil, water, gas

Sizes.....Inches	1½	2	2½	3	3½	4	4½	5	6
Inside Screw, Screwed, Fig. 203a	$25.00	$27.50	$33.00	$45.00	$57.00	$60.00	$77.00	$85.00	$100.00
Inside Screw, Flanged, Fig. 203	27.50	30.00	35.50	48.00	60.00	65.00	82.00	90.00	107.00
O. S. & Y., Screwed, Fig. 204a	33.00	35.50	41.00	54.00	67.00	72.00	92.00	100.00	115.00
O. S. & Y., Flanged, Fig. 204	35.50	38.00	43.50	57.00	70.00	77.00	97.00	105.00	122.00

Net prices on sizes 7 inches to 12 inches on application.

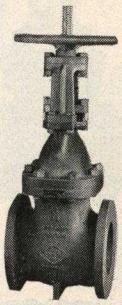


Fig. 873—Double
Disc Gate Valve

Standard Pattern, Double Disc Gate Valves

For 125 pounds steam, or 200 pounds oil, water, gas

Sizes.....Inches	2	2½	3	4	5	6	8	10	12	14	16	18	20	24
Inside Screw, Screwed, Fig. 872	$19.00	$24.00	$28.50	$36.00	$48.50	$57.00	$ 90.00	$128.00	$170.00	.....	.....	.....	.....	.....
Inside Screw, Flanged, Fig. 873	20.00	25.00	30.00	38.00	51.00	60.00	90.00	128.00	170.00	238.00	332.00	442.00	544.00	850.00
O. S. & Y., Screwed, Fig. 874	25.00	31.50	36.00	45.50	61.50	72.00	112.00	160.00	212.00	.....	.....	.....	.....	.....
O. S. & Y., Flanged, Fig. 875	26.00	32.50	37.50	47.50	64.00	75.00	112.00	160.00	212.00	286.00	382.00	510.00	615.00	950.00

Extra Heavy Pattern, Double Disc Gate Valves

For 250 pounds steam, or 500 pounds oil, water, gas

Sizes.....Inches	2	2½	3	4	5	6	8	10	12	14	16	18	20	24
Inside Screw, Screwed, Fig. 876	$37.00	$47.00	$55.00	$70.00	$ 94.50	$117.00	.....	.....	.....	.....	.....	.....	.....	.....
Inside Screw, Flanged, Fig. 877	38.00	48.00	57.00	72.00	97.00	120.00	$180.00	$255.00	$340.00	$475.00	$665.00	$885.00	1100.00	1700.00
O. S. & Y., Screwed, Fig. 878	49.00	62.00	69.50	88.00	118.50	147.00	.....	.....	.....	.....	.....	.....	.....	.....
O. S. & Y., Flanged, Fig. 879	50.00	63.00	71.00	90.00	121.00	150.00	225.00	320.00	425.00	570.00	765.00	1020.00	1240.00	1915.00

Moncrieff "Perth" and "Unific" Scotch Gauge Glasses



"Perth," for Steam Pressures up to 150 Pounds

Price Per Dozen

External Diameters Inches	Length in Inches 8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
½	$ 1.92	$ 2.04	$ 2.28	$ 2.64	$ 2.76	$3.00	$ 3.24	$ 3.48	$ 3.72	$ 3.96	$ 4.20	$ 4.44	$ 4.68	$ 4.80	$ 5.04	$ 5.28	$ 5.52
⅝	2.52	2.76	3.00	3.24	3.60	3.84	4.20	4.44	4.80	5.04	5.40	5.64	6.00	6.36	6.60	6.96	7.20
¾	3.00	3.36	3.60	3.96	4.32	4.80	5.16	5.52	5.88	6.24	6.60	7.08	7.44	7.80	8.16	8.52	8.88
⅞	4.08	4.68	5.04	5.64	6.12	6.60	7.08	7.56	8.16	8.64	9.12	9.60	10.20	10.68	11.16	11.64	12.12
1	4.92	5.52	6.12	6.72	7.32	7.92	8.52	9.12	9.72	10.32	10.92	11.52	12.12	12.84	13.44	14.04	14.64
1¼	8.16	9.24	10.20	11.16	12.24	13.20	14.28	15.24	16.32	17.28	18.36	19.32	20.28	21.36	22.44	23.40	24.36
1½	14.64	16.44	18.36	20.16	21.96	23.76	25.56	27.48	29.28	31.08	32.88	34.68	36.60	38.40	40.20	42.00	43.80

"Unific," for Steam Pressures up to 500 Pounds

Price Per Dozen

External Diameters Inches	Length in Inches 8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
½	$ 2.64	$ 2.88	$ 3.12	$ 3.36	$ 3.72	$ 3.96	$ 4.32	$ 4.68	$ 4.92	$ 5.28	$ 5.52	$ 5.88	$ 6.12	$ 6.48	$ 6.72	$ 7.08	$ 7.44
⅝	3.36	3.72	4.08	4.56	4.92	5.28	5.76	6.12	6.48	6.96	7.32	7.80	8.16	8.64	9.00	9.36	9.84
¾	4.68	5.28	5.76	6.24	6.72	7.20	7.80	8.40	9.00	9.48	10.08	10.56	11.16	11.76	12.36	12.84	13.44
⅞	6.12	6.72	7.32	7.92	8.64	9.24	9.96	10.68	11.40	12.12	12.84	13.56	14.28	15.00	15.72	16.44	17.28
1	7.92	8.64	9.24	10.08	11.04	11.88	12.84	13.80	14.64	15.60	16.44	17.40	18.36	19.20	20.16	21.00	22.08
1¼	12.24	13.80	15.24	16.80	18.36	19.80	21.36	22.92	24.36	25.92	27.48	28.92	30.48	32.04	33.48	35.04	36.72
1½	21.96	24.72	27.48	30.12	32.88	35.64	38.40	41.16	43.80	46.56	49.32	52.08	54.84	57.60	60.24	63.00	65.76

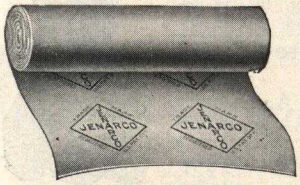


Fig. 398—Jenarco

Jenarco Sheet Packing

A red vulcanized rubber sheet packing for steam and hot or cold water.

Regular.....$1.00 per pound
With Brass Wire Insertion.....1.25 per pound

Approximate Weight per Square Yard

Thickness.....Inches	1/32	1/16	3/32	1/8	3/16	1/4
Regular.....pounds	2¾	5½	8¼	11	16½	22½
Brass Wire.....pounds	.....	8	10¾	13½	19	25

THE KENNEDY VALVE MFG. CO. ELMIRA, N. Y.

Warehouses

New York City — Chicago — San Francisco

Sales Offices

New York, N. Y.
Philadelphia, Pa.
Cleveland, Ohio

Chicago, Ill.
Atlanta, Ga.

Salt Lake City, Utah
El Paso, Texas

Los Angeles, Cal.
San Francisco, Cal
Seattle, Wash.

Standard Bronze Gate Valves



Fig. 27

Working pressures: 3 in. and smaller, steam 125 lb., water 175 lb.; 3½ in. and larger, steam 100 lb., water 150 lb.

Malleable, non-heating wheel, gland in stuffing box.

Fig. 27 Screwed, stationary stem.

Fig. 25 Screwed, rising stem.

Fig. 30 Flanged, stationary stem.

Fig. 26 Flanged, rising stem.

Sizes ¼ in. to 3 in., screwed bonnet and solid wedge disc; 3½ in. to 6 in. bolted bonnet and cam type double discs with parallel seats.

Figs. 27 and 30 in sizes up to 12 in., inside screw or O. R. S. and Y.

T-wrench heads instead of wheels if required.

Fig. 27W same as Fig. 27 except with waste drip. To be used as service valve.

Sizes for Fig. 27W, ½ in. to 2 in. Larger than 2 in., special. List price same as Fig. 27.

Fig. 36 same as Fig. 27 with quick opening attachment. Malleable-iron lever, cast iron wheel, and sliding stem.

Fig. 361 same as Fig. 36 except flanged. Sizes ½ in. to 3 in. Can furnish up to 12 in.

Valves have gland in stuffing box.



Fig. 25

"O. K." Low-Pressure Bronze Gate Valves

Working pressures: steam 100 lb., water 125 lb.

Fig. 1 Solid wedge disc, stationary stem, iron wheel. Sizes, ¼ in. to 2 in. List price of Fig. 1 same as Fig. 27.



Fig. 27 W

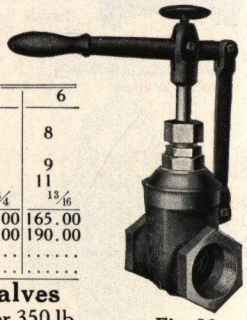


Fig. 36

Sizes, Dimensions and List Prices

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6
Figs. 27; 25; 27W. End to end	1 15/16	1 15/16	2 1/8	2 7/16	2 3/4	3 1/16	3 3/8	3 13/16	4 9/16	5	5 3/4	6	7	8
Figs. 26; 30 Face to face	.....	.....	3 1/8	3 1/4	3 5/8	3 7/8	4 1/4	5 1/8	6	6 1/2	.....	7	8	9
Diameter of flanges	.....	.....	3 1/2	3 7/8	4 1/4	4 5/8	5	6	7	7 1/2	8 1/2	9	10	11
Thickness of flanges	.....	.....	5/16	11/32	3/8	13/32	7/16	1/2	9/16	5/8	11/16	11/16	3/4	13/16
Figs. 25; 27, Screwed	$1.45	$1.45	$1.65	$2.05	$ 2.80	$ 3.70	$ 5.00	$ 7.30	$13.00	$19.00	$43.00	$58.00	110.00	165.00
Figs. 26; 30, Flanged	.....	.....	9.00	9.00	10.25	12.00	15.00	25.00	33.00	39.00	68.00	83.00	135.00	190.00
Fig. 36, Screwed	.....	.....	3.50	3.60	4.80	6.20	8.50	11.80	20.25	30.00	.....	.....	.....	.....
Fig. 361, Flanged	.....	.....	.....	.....	12.50	14.50	18.50	29.50	40.00	50.00	.....	.....	.....	.....

Medium Bronze Gate Valves

Working pressures: steam 200 lb., water 250 lb.

Fig. 37 Solid wedge disc, stationary stem, gland and non-heating wheel. Gland in stuffing box. Sizes ½ in. to 3 in. Screw end only.

Fig. 372 same as Fig. 37 except O. R. S. and Y.

Extra-Heavy Bronze Gate Valves

Working pressures: steam 250 lb., water 350 lb.

Fig. 40 same construction as Fig. 37 except heavier.

Fig. 401 same as Fig. 40 except flanged.

Sizes, Dimensions and List Prices

Size.....Inches	⅜	½	¾	1	1¼	1½	2	2½	3
Fig. 37 Screwed	.....	$2.75	$3.25	$4.50	$6.00	$8.00	$13.00	$20.00	$32.50
Fig. 372 Outside Rising Stem and Yoke	.....	7.50	8.75	10.25	12.00	15.00	22.00	32.00	.....
Figs. 37 and 372 End to end	.....	2 1/32	2 7/16	2 15/16	3 1/4	3 5/8	4	4 5/8	5 15/16
Fig. 40 Screwed	$4.00	$5.00	$6.00	$8.00	$11.25	$16.50	$23.00	$40.00	$ 65.00
Fig. 401 Flanged	.....	.....	.....	16.00	21.50	30.00	41.00	65.00	100.00
Fig. 40 End to end	2 5/8	2 5/8	3 1/8	3 1/2	3 7/8	4 3/8	5 5/8	6 1/8	6 3/4
Fig. 401 Face to face	.....	.....	.....	4 5/16	4 9/16	5 5/16	6 3/16	7 1/8	8 3/16
Diameter of flanges	.....	.....	.....	4 7/8	5 1/4	6 1/8	6 1/2	7 1/2	8 1/4
Thickness of flanges	.....	.....	.....	1/2	17/32	9/16	5/8	11/16	3/4



Fig. 37



Fig. 40

Bronze Hose Gate Valves

Working pressure: water 175 lb.

Solid wedge disc, stationary stem, malleable iron wheel. Gland in stuffing box.

National standard hose thread on hose end; other end, standard Iron Pipe thread. Special Threads if desired.

Fig. 29 Rough body, iron wheel, cap and chain.

Fig. 29E same as Fig. 29 except fin. brass wheel

Fig. 31 same as Fig. 29 without cap and chain.

Fig. 31E same as Fig. 31 except fin. brass wheel

Can be furnished finished, or finished and nickel plated.

Sizes ¾ in. to 2½ in.

Fig. 39 Hose Gate, National Standard Underwriters Approved with cap and chain.

Fig. 38 same as Fig. 39 without cap and chain.

Made only in 2½ in. size.

List prices, Figs. 38, 39 same as Figs. 31, 29, respectively.

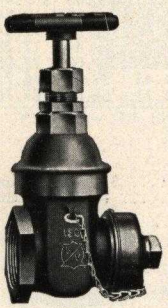


Fig. 29

Sizes and List Prices

Size.....Inches	¾	1	1¼	1½	2	2½
Fig. 29 With iron wheel—Rough body	$3.95	$5.10	$6.70	$8.85	$12.60	$20.00
Fig. 29E With finished brass wheel	5.20	6.95	8.85	11.45	15.90	23.70
Fig. 31 With iron wheel—Rough body	2.45	3.35	4.70	6.25	9.00	15.00
Fig. 31E With finished brass wheel	3.70	5.20	6.85	8.85	12.30	18.70

"National Standard" Underwriters Approved Bronze Gate Valves O. R. S. & Y.

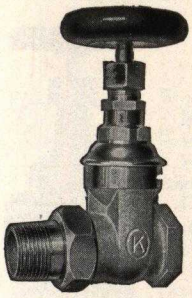
Working pressure: water 150 lb. **Fig. 66** Solid wedge disc, outside rising stem and yoke. Approved by the Associated Factory Mutual Fire Insurance Companies, and the National Board of Fire Underwriters

Sizes, Dimensions and List Prices

Size.....Inches	¾	1	1¼	1½	2
Fig. 66 Screwed	$8.75	$10.25	$12.00	$15.00	$22.00
Fig. 66 End to end	2¼	2¾	3 1/16	3⅛	3 5/8



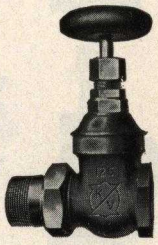
Fig. 66


Fig. 2

Bronze Radiator Gate Valves

Working pressures: Steam 100 lb., water 125 lb.
Stationary stem, solid wedge disc.
Fig. 2 Wood wheel and male union.
Fig. 3 Same as Fig. 2 except without union.
Figs. 2 and 3 also furnished with Lock Shield at extra cost.
Rough body, nickel-plated all over.

Working pressures: Steam 125 lb., water 175 lb.
Stationary stem, solid wedge disc.
Fig. 34 Wood wheel and male union.
Fig. 32 Same as Fig. 34 except no union.
Sizes, ½ in. to 2 in.
Gland in stuffing box.


Fig. 34

Sizes and List Prices

Size.....Inches	½	¾	1	1¼	1½	2
Figs. 2 and 34, Rough body, nickel plated...	$3.65	$4.25	$5.20	$6.60	$9.00	$12.80

Prices of other styles and finishes on application.


Fig. 5

"O. K." Low-Pressure Bronze Radiator Angle Valves

Working pressure: Steam 80 lb.
Fig. 5 Angle, with Composition Wheel and Male Union.
Renewable Composition Disc.
Rough Body Nickel-Plated.

Working pressure: Hot water 100 lb.
Fig. 9 Angle, with Composition Wheel and Male Union.
Rough Body Nickel-Plated.
Fig. 12 Hot Water Union Elbows.
Rough Body Nickel Plated.

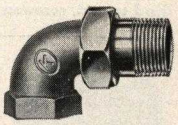

Fig. 9

"Government Pattern" Heavy Bronze Radiator Angle Valves

Working pressures: Steam 150 lb., water 200 lb.
Fig. 94 Angle, No Union.
Fig. 95 Angle, Male Union.
Fig. 96 Corner, Left Hand. Offset Male Union.
Fig. 960 Corner, Right Hand. Offset Male Union.
Gland in stuffing box.

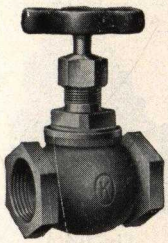
Renewable Composition Disc interchangeable with Jenkins. Lockshields instead of wheels at same price. Unless otherwise specified these valves are supplied Rough Body, Nickel-Plated.


Fig. 95


Fig. 12

Sizes and List Prices

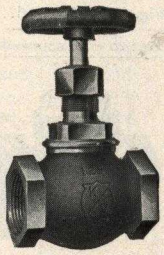
"O. K." Type	Gov't Type	½ Inch	¾ Inch	1 Inch	1¼ Inch	1½ Inch	2 Inch
.....	Fig. 94	$2.40	$2.90	$3.60	$4.90	$6.65	$10.90
Fig. 5	Fig. 95	3.70	4.30	5.10	6.40	8.40	13.60
Fig. 9	.....	3.25	3.70	4.50	5.75	7.30	12.00
Fig. 12	.....	1.75	2.00	2.50	3.30	4.25	7.20
.....	Figs. 96, 960	4.10	4.75	5.60	7.05	9.25	15.00


Fig. 87

"O. K." Low-Pressure Bronze Globe and Angle Valves (Figs. 87, 88)

Working pressures: Steam 80 lb., water 100 lb.
Fig. 87 Body, disc and stem bronze, cast-iron wheel.

Fig. 88 Same as Fig. 87 except angle.
Sizes, ½ in. to 2 in.


Fig. 150

Standard Bronze Globe and Angle Valves

Working pressures, 3 in. and smaller, steam 125 lb., water 175 lb.
3½ in. and 4 in., steam 100 lb., water 150 lb.
Fig. 150 Body, disc and stem bronze. Malleable non-heating wheel.
Fig. 151 Same as Fig. 150 except angle.
Gland in stuffing box.
Sizes, ⅛ in. to 4 in.

Sizes, Dimensions and List Prices

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4
Figs. 87, 88, Screwed.....	.....	.....	.....	$1.00	$1.26	$1.80	$2.52	$3.50	$5.30	.....	.....	.....	.....
Figs. 150, 151, Screwed.....	$0.72	$0.72	$0.77	1.00	1.26	1.80	2.52	3.50	5.30	$10.00	$14.40	$26.50	$36.00
Fig. 150, End to end, screwed.....	1 7/16	1 1/2	1 5/8	2 1/4	2 5/8	3 3/16	3 5/8	4 1/8	5	5 7/8	6 13/16	8	9
Fig. 151, Center to end, screwed....	23/32	3/4	13/16	1 1/8	1 5/16	1 19/32	1 13/16	2 1/16	2 1/2	2 15/16	3 13/32	4	4 1/2

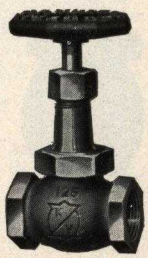
Standard Bronze Regrinding Globe and Angle Valves (Figs. 130, 131)

Working pressures: Steam 125 lb., water 175 lb.


Fig. 91

Fig. 130 Globe, screwed.

Fig. 131 Angle, screwed.


Fig. 130

Heavy Bronze Globe and Angle Valves (Figs. 91, 92)

Working pressures: Steam 150 lb., water 200 lb.
Renewable composition disc. Gland in stuffing box. Non-heating malleable wheel.
Fig. 91 Globe, screwed. **Fig. 92** Angle, screwed.

Sizes, Dimensions and List Prices

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Figs. 91, 92 Screwed.....	$1.10	$1.25	$1.60	$2.20	$2.80	$4.00	$5.50	$8.75	$15.75	$22.00
Figs 130, 131 Screwed....	.....	.....	1.15	1.45	2.00	2.80	3.90	6.20	12.00	.....
Fig 91, End to end.....	2	2 5/16	2 1/2	3 1/8	3 5/8	4 7/16	4 5/8	5 1/2	6 1/4	7 3/16
Fig. 92, Center to end.....	15/16	1 5/32	1 1/4	1 9/16	1 3/4	2 1/16	2 5/16	2 3/4	3 1/16	3 1/2
Fig. 130, End to end.....	.....	.....	2 5/16	2 5/8	3 1/8	3 5/8	4 1/16	4 7/8	6 1/8	.....
Fig. 131, Center to end....	.....	.....	1 3/32	1 5/16	1 9/16	1 13/16	2 1/32	2 7/16	3 1/16	.....



Fig. 135

Medium, Extra-Heavy and High Pressure Bronze Regrinding Globe and Angle Valves

Working pressures: steam 200 lb., water 250 lb.
Fig. 134 Globe, screwed.
Fig. 135 Angle, screwed.
Malleable non-heating wheel.
Sizes ¾-inch and larger have gland in stuffing box.

Working pressures: steam 300 lb., water 500 lb.
Fig. 544 Globe, screwed.
Fig. 546 Angle, screwed.
Renewable bronze seat ring and disc. Non-heating wheel.
Dimensions and prices of flanged valves on application.

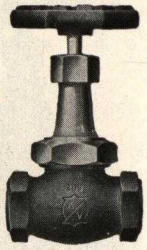


Fig. 544

Sizes, Dimensions and List Prices

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Fig. 134—Globe, or Fig. 135—Angle, screwed	$0.70	$0.70	$0.85	$1.15	$1.45	$2.00	$2.80	$3.90	$6.20	$12.00	$16.50
End to end, screwed, Fig. 134	1 7/8	1 7/8	2	2 5/16	2 13/16	3 5/16	3 13/16	4 1/4	5 1/16	6 3/8	7 1/2
Center to end, screwed, Fig. 135	15/16	15/16	1	1 5/32	1 13/32	1 21/32	1 29/32	2 1/8	2 17/32	3 3/16	3 3/4

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Fig. 544—Globe, screwed	$1.60	$1.70	$2.50	$3.80	$4.90	$6.50	$9.00	$14.00	$25.00	$36.00
Fig. 546—Angle, screwed	1.60	1.70	2.50	3.80	4.90	6.50	9.00	14.00	25.00	36.00
End to end, screwed, Fig. 544	2 1/8	2 5/16	2 7/8	3 5/8	4 1/8	4 3/4	5 1/4	6 3/8	7 3/8	8 3/8
Center to end, screwed, Fig. 546	1 1/16	1 5/32	1 7/16	1 13/16	2 1/16	2 3/8	2 5/8	3 3/16	3 11/16	4 3/16

Standard Bronze Regrinding Check Valves

Sizes and List Prices

Size.....Inches	½	¾	1	1¼	1½	2
Fig. 133—Screwed	$0.85	$1.15	$1.55	$2.30	$3.25	$5.20
End to end, screwed, Fig. 133	2 3/16	2 5/8	3 1/8	3 5/8	4 1/16	4 7/8

Working pressures: steam 125 lb., water 175 lb.
Bronze disc. May be re-ground while in place.
Fig. 133 Horizontal, screwed.



Fig. 137

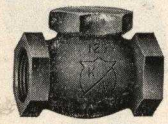


Fig. 133

Medium Bronze Regrinding Check Valves

Working pressures: steam 200 lb., water 250 lb.
Fig. 137 Horizontal, screwed.

Regrinding seat and strong construction make them high grade for Marine service and other installations.

Sizes and List Prices

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Fig. 137—Screwed	$0.50	$0.50	$0.60	$0.85	$1.15	$1.55	$2.30	$3.25	$5.20	$10.00	$14.00
End to end, screwed, Fig. 137	1 7/8	1 7/8	2	2 5/16	2 13/16	3 5/16	3 13/16	4 1/4	5 1/16	6 3/8	7 1/2



Fig. 103

Standard Bronze Swing Check Valves

Working pressures: steam 125 lb., water 175 lb.
Fig. 103 Screwed. Side plug on one side only.
Fig. 103H Screwed. Side plugs on both sides.
Fig. 103J Screwed. Leather-faced disc. One side plug.
Fig. 103K Screwed. Leather-faced disc. Side plugs on both sides.
These valves are straightway having a direct passageway of the full area of the pipe.

Bronze Swing Check Valves for Low-Pressure

Working pressures: steam 100 lb., water 125 lb.
Sizes, ¼ to 2 inches only.
Fig. 104 Screwed.



Fig. 104

Sizes, Dimensions and List Prices

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Figs. 103, 104—Screwed	$1.80	$1.80	$2.00	$2.25	$2.80	$3.65	$4.75	$6.75	$15.00	$24.00
Figs. 103H, 103J, 103K—Screwed	2.00	2.00	2.25	2.50	3.15	4.05	5.25	7.50	16.50	26.25
End to end, Fig. 103 Type	2	2	2 1/2	3	3 3/8	3 7/8	4 1/8	5 1/8	6	6 7/8
End to end, Fig. 104 Type	2	2	2 1/2	2 5/8	3 5/16	3 5/8	4 1/16	4 3/4	.....	.....

Standard Bronze Vertical Check Valves

Working Pressures: steam 125 lb., water 175 lb.

Sizes and List Prices

Size.....Inches	⅜	½	¾	1	1¼	1½	2
Fig. 490	$0.77	$1.00	$1.26	$1.80	$2.52	$3.50	$5.30
End to end	2 5/16	2 1/2	2 3/4	2 7/8	3 3/8	3 1/8	4 1/2



Fig. 490

Extra-Heavy Bronze Swing Check Valves

Working pressures: steam 250 lb., water 400 lb.

Sizes and List Prices

Size.....Inches	¾	1	1¼	1½	2	2½	3
Fig. 492—Screwed	$3.25	$4.25	$6.00	$7.50	$12.00	$25.00	$45.00
End to end	3	3 9/16	4 1/16	4 9/16	5 11/16	7 1/4	8 3/8

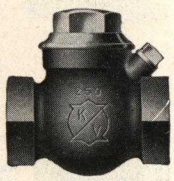


Fig. 492

Low Pressure Gate Valves

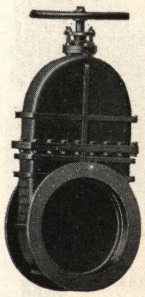


Fig. 50

Working pressures:
Fig. 50 Steam 25 lb., water 50 lb.
Iron-body, bronze-mounted.
Fig. 501 Pressure 50 lb.
All-iron for gas.
Fig. 47 Steam 15 lb., water 35 lb.
Iron-body, bronze-mounted.
Fig. 471 Pressure 35 lb.
All-iron for gas.
Inside screw, double discs and parallel seats.
Flanged only, drilling flanges extra charge.
Companion flanges not included. These valves can be fitted with spur or bevel gearing, hydraulic cylinder or electric motor.
Fig. 47D Same as Fig. 47 except has clean-out pockets.

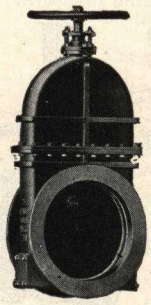


Fig. 47 D

Working pressures:
Fig. 48 Steam 15 lb., water 35 lb.
Iron-body, bronze-mounted. Steel stem.
Fig. 481 Same as Fig. 48 except with bronze stem.
Fig. 482 Pressure 35 lb. All-iron for gas.
Fig. 53 Steam 25 lb., water 50 lb.
Iron-body, bronze-mounted. Steel stem.
Fig. 531 Same as Fig. 53 except with bronze stem.
Fig. 48D O. R. S. & Y. with clean-out pockets.
Prices on application.
Outside rising stem and yoke.
Double discs and parallel seats.
Flanged only, drilling flanges extra charge.

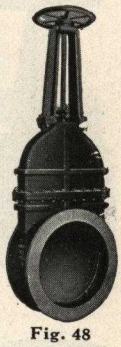


Fig. 48

Sizes, Dimensions and List Prices

Size, Inches	14	16	18	20	24	30	36	42	48
Price, each, Figs. 47, 50, etc	$165	$215	$300	$345	$540	$1025	$1450	$1900	$2800
Price, each, Figs. 48, 481, etc	200	255	340	395	610	1125	1650	2150	3100
Face to face of flanges	11½	12	12½	13	13¼	15	16	24	26
Diameter of flanges	21	23½	25	27½	32	38¾	46	53	59½
End to end, bell ends	14⅜	15⅛	15¼	15⅜	15	17	17½	25	26¾

Gearing, Hydraulic Cylinder, or Electric Motor may be furnished for above valves.
All above types can be furnished with bell ends if required.

Standard Gate Valves

Working pressures: up to 12-in.: steam 125 lb., water 175 lb.
14 and 16-in.; steam 125 lb., water 150 lb.
18-in. and larger: steam 100 lb., water 120 lb.

Double disc parallel seats. All standard valves can be furnished up to 60-in. Gearing and by-pass prices on application.



Fig. 57



Fig. 59



Fig. 61

Figure Numbers

	Inside Stationary Stem		Outside Rising Stem and Yoke			Quick Opening Stem
	IBBM	All Iron	IBBM		All Iron	IBBM
	Bronze Stem	Steel Stem	Bronze Stem	Steel Stem	Steel Stem	Bronze Stem
Screwed Ends	57	82	601	60	85	62
Flanged Ends	58	83	611	61	86	63
Bell Ends	59	84	613	612	861	632

Sizes, Dimensions and List Prices

Size, Inches	1½	2	2½	3	3½	4	4½	5	6	7	8
Fig. 57 or 82, Screwed ends	$10.00	$10.00	$11.50	$14.00	$17.00	$19.00	$24.00	$27.50	$32.50	$45.00	$54.00
Fig. 58 or 83, Flanged ends	12.00	12.00	13.50	16.50	19.50	23.00	28.00	31.50	36.50	49.00	58.00
Fig. 59 or 84, Bell ends	.....	10.00	.....	14.00	.....	19.00	.....	.....	32.50	.....	54.00
Fig. 62, Screwed ends	.....	17.50	19.00	22.00	25.00	30.00	37.00	42.00	48.00	64.00	80.00
Fig. 63, Flanged ends	.....	19.50	21.00	24.50	27.50	34.00	41.00	46.00	52.00	68.00	84.00
Fig. 60 or 85, Screwed ends	17.50	17.50	19.00	22.00	25.00	30.00	37.00	42.00	48.00	64.00	80.00
Fig. 601, Screwed ends	19.00	19.00	20.50	23.50	27.00	32.50	40.00	45.00	52.00	68.00	86.00
Fig. 61 or 86, Flanged ends	19.50	19.50	21.00	24.50	27.50	34.00	41.00	46.00	52.00	68.00	84.00
Fig. 611, Flanged ends	21.00	21.00	22.50	26.00	29.50	36.50	44.00	49.00	56.00	73.00	90.00
Face to face—Screwed	4	5	6	6¼	6¾	7	7⅝	8	8⅝	10	10¼
Face to face—Flanged	5½	7	7½	8	8½	9	9½	10	10½	11	11½
End to end—Bell ends	.....	7⅞	.....	9½	.....	11	.....	10½	11½	.....	13⅛

Size, Inches	9	10	12	14	16	18	20	22	24	30
Fig. 57 or 82, Screwed ends	$76.00	$90.00	$125.00	.....	.....	.....	.....	.....	.....	.....
Fig. 58 or 83, Flanged ends	81.00	95.00	133.00	181.00	$260.00	$350.00	$425.00	$530.00	$600.00	$1100.00
Fig. 59 or 84, Bell ends	.....	90.00	125.00	173.00	250.00	340.00	415.00	.....	590.00	1075.00
Fig. 62, Screwed ends	105.00	122.00	160.00	.....	.....	.....	.....	.....	.....	.....
Fig. 63, Flanged ends	110.00	127.00	168.00	236.00	325.00	.....	.....	.....	.....	.....
Fig. 60 or 85, Screwed ends	105.00	122.00	160.00	.....	.....	.....	.....	.....	.....	.....
Fig. 601, Screwed ends	113.00	131.00	172.00	.....	.....	.....	.....	.....	.....	.....
Fig. 61 or 86, Flanged ends	110.00	127.00	168.00	236.00	325.00	435.00	525.00	650.00	725.00	1300.00
Fig. 611, Flanged ends	118.00	136.00	180.00	255.00	350.00	470.00	565.00	700.00	775.00	1400.00
Face to face—Screwed	10⅞	11½	13¼	.....	.....	.....	.....	.....	.....	.....
Face to face—Flanged	12	13	14	14⅜	14⅝	15⅛	20½	21½	22½	26
End to end—Bell ends	.....	14	14¾	15	16⅛	16½	22	.....	23	26½

"National Standard" Underwriters' Approved Gate Valves

Working pressure: water, 150 lb.

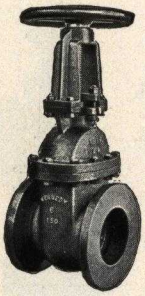


Fig. 68

Fig. 67 Screwed; **Fig. 68** Flanged; and **Fig. 681** Bell End valves are I. B. B. M.

Double discs, parallel seats, and outside rising stem and yoke.

Bonnet and yoke, one piece, on 4-in. and smaller.

Figs. 64-65 Iron-body, bronze-mounted. Stationary stem. Tank Blowoff Valves.

Size, 3-in. only.

Fig. 64 Screwed.....$14.00
Fig. 65 Flanged..... 16.50

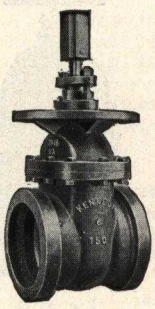


Fig. 70

Fig. 70 Bell Ends, for use with Indicator post.

Flange cast solid with cap for bolting to Indicator post.

Fig. 541 Indicator Post only, for operating valves, 2 to 14 in.

Operating Nut 1¼ in. square, and turn to left to open, unless otherwise specified.

Fig. 54 Indicator Post (as illustrated), with **Fig. 70** valve.

Fig. 542 Indicator Post only, for any make of valve already installed.



Fig. 54



Fig. 64

Drilling flanges, extra.
Dimensions of valves same as standard valves.
All National Standard Underwriters' type valves made to specifications of National Board of Fire Underwriters' and Associated Factory Mutual Fire Insurance Companies, and bear approval marks.

Sizes and List Prices

Size.....Inches	2½	3	3½	4	5	6	7	8	10	12	14
Fig. 67, Screwed, and 681, Bell....	$20.50	$23.50	$27.00	$32.50	$45.00	$52.00	$69.00	$ 86.00	$131.00	$172.00	.....
Fig. 68, Flanged.....	22.50	26.00	29.50	36.50	49.00	56.00	73.00	90.00	136.00	180.00	$255.00
Fig. 54, 5-foot trench.....	.....	.....	.....	70.00	.....	84.00	.....	105.00	148.00	185.00	230.00
Post only, Fig. 541, 5-foot trench...	.....	.....	.....	40.00	.....	40.00	.....	40.00	40.00	40.00	40.00

Sizes and List Prices

Size.....Inches	4	6	8	10	12	14
Fig. 702—Screwed.....	$19.00	$32.50	$54.00	$90.00	$125.00	$173.00
Fig. 701—Flanged.....	23.00	36.50	58.00	95.00	133.00	181.00
Fig. 70—Bell.....	19.00	32.50	54.00	90.00	125.00	173.00

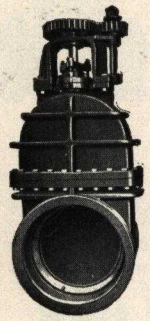


Fig. 56A

Kennedy "Newtype" Heavy Water Gate Valves

CONFORM WITH AMERICAN WATER WORKS ASSOCIATION SPECIFICATIONS

Working pressures:
2 to 12 in.; water, 200 lb.
14 to 60 in.; water, 150 lb.

Iron-body, bronze-mounted. Double discs, parallel seats.

Fig. 56 Stationary stem, bell ends.

Fig. 56A Same as Fig. 56 except with spur gearing.

Fig. 56AG Electrically operated.

Fig. 56BE Bevel gearing and bypass.

Prices for special connections, flanged outside rising stem and yoke, or one end flanged and one end bell, on application.



Fig. 56

Sizes, Dimensions and List Prices

Size.....Inches	3	4	6	8	10	12	14	16	18	20	24	30	36	42	48	54	60
Fig. 56.....	.....	$23.00	$42.00	$66.00	100.00	126.00	190.00	240.00	345.00	400.00	595.00	1200.00	1800.00	2675.00	3600.00	On ap	p.
End to end of bells without bypass	11⅝	12⅜	13¼	13½	14	14¾	15	16⅛	16½	22	23	26½	28¾	31½	32½	37	42

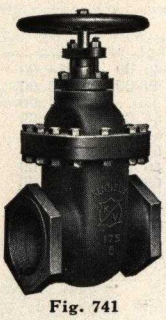


Fig. 741

Medium Gate Valves

Working pressures: steam 175 lb., water 250 lb.

Inside stationary stem.
Fig. 74 Flanged, I. B. B. M.
Fig. 741 Screwed, I. B. B. M.
Iron - body, bronze - mounted, or all - iron. Double discs, taper seats.
Drilling flanges and companion flanges, extra.

Outside rising stem and yoke.
Fig. 75 Flanged, steel stem, I. B. B. M.
Fig. 752 Screwed, steel stem, I. B. B. M.
Bypass and bronze stems may be supplied at an extra charge.



Fig. 75

Sizes, Dimensions and List Prices

Size.....Inches	1½	2	2½	3	3½	4	4½	5	6	7	8	10	12	14	15	16	18	20
Fig. 741—Screwed ends.....	$15.00	$15.00	$17.00	$20.00	$25.00	$28.00	$35.00	$40.00	$50.00	$75.00	$87.00	145.00	185.00	.....	.....	.....	.....	.....
Fig. 74—Flanged ends.....	17.50	17.50	19.50	23.00	28.00	33.00	40.00	45.00	57.00	82.00	94.00	153.00	195.00	300.00	350.00	400.00	.....	.....
Fig. 752—Screwed ends.....	23.00	23.00	25.00	29.00	35.00	40.00	50.00	54.00	65.00	90.00	110.00	170.00	215.00	.....	.....	.....	.....	.....
Fig. 75—Flanged ends.....	25.50	25.50	27.50	32.00	38.00	45.00	55.00	59.00	72.00	97.00	117.00	178.00	225.00	340.00	400.00	450.00	600.00	775.00
Face to face—Screwed.....	6¼	6¼	7	7⅝	8	8½	8¾	9¼	10	12¼	12½	14	15½	.....	.....	.....	.....	.....
Face to face—Flanged.....	7½	7½	8	9½	10	10½	11	11½	12	12½	13½	15	16	18	18¾	20⅜	26	28



Fig. 76

Extra-Heavy Gate Valves

Working pressure: Steam, 250 lb.; water, 350 lb.

Inside stationary stem.

Fig. 76 Flanged, I. B. B. M.

Fig. 761 Screwed, I. B. B. M.

Iron-body, bronze-mounted, or all-iron.

Double discs; taper seats.

Add letter E to Fig. No. for bypass. Bypass, drilling flanges and companion flanges, at extra cost.

Outside rising stem and yoke.

Fig. 77 Flanged, steel stem, I. B. B. M.

Fig. 772 Screwed, steel stem, I. B. B. M.

Bronze stems, extra charge.

Valves, geared, with bypass or with floor stands, or electrically or hydraulically operated, on application.



Fig. 772

Sizes, Dimensions and List Prices

Size.....Inches	1½	2	2½	3	3½	4	5	6	7	8	10	12	14	15	16	18	20
Fig. 761—Screwed ends	$25.00	$27.50	$33.00	$45.00	$57.00	$60.00	$85.00	100.00	125.00	155.00	250.00	.....	.....	.....	.....	.....	.....
Fig. 76—Flanged ends	27.50	30.00	35.50	48.00	60.00	65.00	90.00	107.00	132.00	162.00	258.00	335.00	440.00	540.00	675.00	On	App.
Fig. 772—Screwed ends	33.00	35.50	41.00	54.00	67.00	72.00	100.00	115.00	140.00	180.00	275.00	.....	.....	.....	.....	.....	.....
Fig. 77—Flanged ends	35.50	38.00	43.50	57.00	70.00	77.00	105.00	122.00	147.00	187.00	282.00	390.00	510.00	610.00	750.00	On	App.
Face to face—Screwed	4⅞	7	9	10	10½	10¾	13¼	13¾	14¾	15¾	.....	.....	.....	.....	.....	.....	.....
Face to face—Flanged	7½	8	9½	11⅛	11⅞	12	15	15⅞	16¼	16½	18	19¾	21½	.....	21½	22	25

400-lb., 700-lb., 1000-lb., 1600-lb. Test Gate Valves for Oil



Fig. 170
400-Lb. Test



Fig. 187
700-Lb. Test

Fig. Nos.	Test Pressure Pounds	Working Pressure Oil, Gas or Water Pounds
Figs. 167, 168, 169, 170	400	250
Figs. 187, 188, 189, 190	700	400
Figs. 177, 178, 179, 180	1000	500
Figs. 191, 192, 193, 194	1600	800

Double discs, semi-steel body, bronze-mounted, parallel seats.

Screwed-end valves have lead recess and standard pipe thread unless otherwise specified. Casing thread can be supplied if required. Drilling through valves can be supplied on order.

List prices of flanged-end valves include facing and drilling. No deduction on valves ordered with flanges undrilled.



Fig. 177
1000-Lb. Test

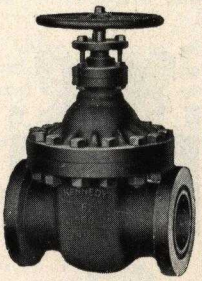


Fig. 192
1600-Lb. Test

Sizes and List Prices

Size.....Inches	2	2½	3	4	6	8	10	12
Fig. 167—Screwed, inside stationary stem	29.00	37.00	43.50	$55.00	$87.00	135.00	192.00	255.00
Fig. 168, Flanged, inside stationary stem	30.00	38.00	45.00	57.00	90.00	135.00	192.00	255.00
Fig. 169, Screwed, outside rising stem & yoke	38.00	49.00	54.50	69.00	109.00	168.00	240.00	318.00
Fig. 170, Flanged, outside rising stem & yoke	39.00	50.00	56.00	71.00	112.00	168.00	240.00	318.00
Fig. 187, Screwed, inside stationary stem	33.00	42.50	49.50	63.00	99.00	153.00	218.00	290.00
Fig. 188, Flanged, inside stationary stem	34.00	43.50	51.00	65.00	102.00	153.00	218.00	290.00
Fig. 189, Screwed, outside rising stem & yoke	43.00	55.50	62.50	79.00	124.00	191.00	272.00	362.00
Fig. 190, Flanged, outside rising stem & yoke	44.00	56.50	64.00	81.00	127.00	191.00	272.00	362.00

Size.....Inches	2	2½	3	4	6	8	10	12
Fig. 177, Screwed, inside stationary stem	37.00	47.00	55.50	70.00	117.00	180.00	255.00	340.00
Fig. 178, Flanged, inside stationary stem	38.00	48.00	57.00	72.00	120.00	180.00	255.00	340.00
Fig. 179, Screwed, outside rising stem & yoke	49.00	62.00	69.50	88.00	147.00	225.00	320.00	425.00
Fig. 180, Flanged, outside rising stem & yoke	50.00	63.00	71.00	90.00	150.00	225.00	320.00	425.00
Fig. 191, Screwed, inside stationary stem	.....	.....	73.50	98.00	182.00	300.00	550.00	975.00
Fig. 192, Flanged, inside stationary stem	.....	.....	75.00	100.00	185.00	300.00	550.00	975.00
Fig. 193, Screwed, outside rising stem & yoke	.....	.....	92.50	123.00	228.00	375.00	690.00	1220.00
Fig. 194, Flanged, outside rising stem & yoke	.....	.....	94.00	125.00	231.00	375.00	690.00	1220.00

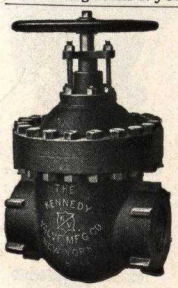


Fig. 781
Drilling Valve

Extreme-Pressure Hydraulic Gate Valves

Test pressure: water, 2500 lb.

Fig. 781 Screwed and **Fig. 78** Flanged, have stationary stem.

Double discs, parallel seats.

Bronze-mounted.

Furnished in cast-iron or semi-steel.

For service in high-pressure, hydraulic, natural gas and oil piping

Fig. 791 Screwed, O. R. S. & Y.

Fig. 79 Flanged, O. R. S. & Y.

Use of valve should be stated when ordering.

With or without bypass.

Prices on application.

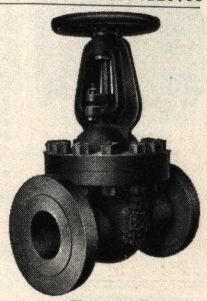


Fig. 79
Pipe Line Valve

Fig. 55



Kennedy-Pennie Back-Water and Sewer-Gas Valve

A seal against back-water or sewer gases.

Cast-iron body; seat and disc, non-corrosive bronze.

Counterweight cast iron; can be lead weighted for any position. Horizontal position requires no lead.

For standard or extra heavy soil pipe.

Tested before shipping, and will stand smoke test.

Sizes and List Prices

Size.....Inches	2	3	4	5	6	8	10	12
Fig. 55	$5.00	$6.00	$8.00	$11.00	$14.00	$22.00	$50.00	$60.00

Standard Swing Check Valves

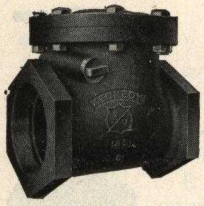


Fig. 105

Working pressures:
Valves, 12-inch and smaller; water, 175 lb.; steam, 125 lb.
Valves, 14 and 16-inch; water, 150 lb. 18-inch and larger; water, 120 lb.

Fig. 105 Screwed, I. B. B. M. Bronze-faced disc.
Fig. 105A Screwed, I. B. B. M. Leather-faced disc.
Fig. 107, 107A Bell ends.
Fig. 106 Flanged, I. B. B. M. Bronze-faced disc.
Fig. 106A Flanged, I. B. B. M. Leather-faced disc.
Drilling and companion flanges extra.
Valves can be used in horizontal or vertical position.



Fig. 106

Sizes, Dimensions and List Prices

Size.....Inches	2	2½	3	3½	4	4½	5	6	7	8	10	12	14	15	16	18	20	24
Fig. 105, Screwed	$11.00	$12.00	$13.50	$17.50	$20.00	$26.00	$30.00	$36.00	$55.00	$70.00	110.00	160.00	.....	.....	.....	.....	.....	.....
Fig. 105A, Screwed, leather faced disc	12.00	13.50	15.50	20.00	23.00	29.50	34.00	40.00	61.00	77.50	120.00	172.00	.....	.....	.....	.....	.....	.....
Fig. 106, Flanged	13.00	14.50	17.00	21.00	24.00	30.00	34.00	41.00	60.00	75.00	115.00	168.00	340.00	400.00	450.00	600.00	700.00	1000.00
Fig. 106A, Flanged, leather faced disc	14.00	16.00	19.00	23.50	27.00	33.50	38.00	45.00	66.00	82.50	125.00	180.00	Prices	on ap	plicati	on.		
Fig. 107, Bell ends, leather faced disc	.....	.....	19.00	.....	27.00	.....	38.00	45.00	.....	82.50	125.00	185.00	340.00	.....	450.00	600.00	700.00	1000.00
Fig. 107A, Bell ends	.....	.....	17.00	.....	24.00	.....	34.00	41.00	.....	75.00	115.00	168.00	Prices	on ap	plicati	on.		
Face to face—Screwed	6¼	7½	8¼	8½	10	11½	11½	13½	14⅝	15¼	19	22⅛	.....	.....	.....	.....	.....	.....
Face to face—Flanged	8	8½	9½	10½	11½	13	13	14	14½	19½	24½	27½	24	.....	26½	29	32	38
End to end—Bell ends	.....	.....	12	.....	13¼	.....	15¼	15⅝	.....	18½	21¼	25	27	.....	29½	31	34	37½

"National Standard" Underwriters' Approved Swing Check Valves

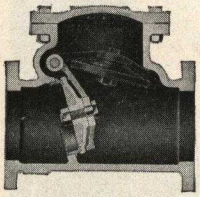


Fig. 126

Working pressure: water 150 lb.
Fig. 126—Flanged, iron-body, bronze-mounted, bronze-faced disc.
Fig. 127—Bell ends, iron body, bronze-mounted, leather-faced disc.
Bypass, drilling flanges and companion flanges, extra. Underwriters' approved pattern.

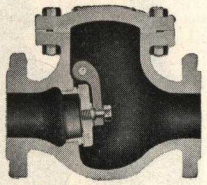


Fig. 889

Sizes and List Prices

Size.....Inches	4	5	6	8	10	12
Fig. 126—Bronze faced disc	$24.00	$34.00	$41.00	$75.00	$115.00	$168.00
Fig. 127—Leather faced disc	30.00	.....	49.00	90.00	135.00	197.00

Extra-Heavy Swing Check Valves

Working Pressures: steam, 250 lb.; water, 400 lb.
Iron-Body, Bronze-Mounted — Bronze-Faced Disc

Sizes and List Prices

Size.....Inches	2	2½	3	3½	4	4½	5	6	7	8	10
Fig. 888—Screwed	$15.00	$20.00	$28.00	$36.00	$41.00	$49.50	$54.00	$66.00	$84.00	$100.00	$170.00
Fig. 889—Flanged	17.00	22.00	30.00	38.00	44.00	52.00	57.00	70.00	88.00	105.00	175.00

Standard Globe, Angle and Cross Valves

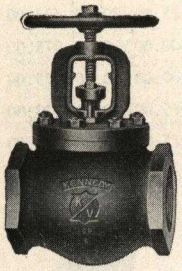


Fig. 459
Bronze-faced Disc

Working pressures: steam, 125 lb.; water, 175 lb.
Iron-Body, Bronze-Mounted — Bronze-Faced Disc

Sizes and List Prices

Size.....Inches	2	2½	3	3½	4	4½	5	6	7	8	10	12
Fig. 459—Globe, screwed	$ 7.00	$ 9.00	$12.50	$15.25	$19.00	$24.00	$27.00	$37.50	$63.00	$72.00	114.00	170.00
Fig. 461—Angle, screwed	7.00	9.00	12.50	15.25	19.00	24.00	27.00	37.50	63.00	72.00	114.00	170.00
Fig. 463—Cross, screwed	8.50	11.75	16.25	20.00	23.50	30.65	35.25	47.25	78.00	92.00	162.00	240.00
Fig. 460—Globe, flanged	8.60	10.75	15.00	18.50	22.50	27.50	31.00	42.00	68.00	77.00	123.00	187.00
Fig. 462—Angle, flanged	8.60	10.75	15.00	18.50	22.50	27.50	31.00	42.00	68.00	77.00	123.00	187.00
Fig. 464—Cross, flanged	11.00	14.50	20.00	25.00	28.50	36.00	41.00	54.00	85.00	100.00	175.00	265.00
Fig. 435—Globe, screwed*	10.00	12.00	16.75	19.50	24.00	32.00	40.00	48.00	80.00	90.00	130.00	185.00
Fig. 437—Angle, screwed*	10.00	12.00	16.75	19.50	24.00	32.00	40.00	48.00	80.00	90.00	130.00	185.00
Fig. 436—Globe, flanged*	11.75	14.00	18.50	21.50	26.00	34.00	42.00	50.00	80.00	90.00	130.00	185.00
Fig. 438—Angle, flanged*	11.75	14.00	18.50	21.50	26.00	34.00	42.00	50.00	80.00	90.00	130.00	185.00

*These valves are furnished with renewable composition Discs unless otherwise specified. For cold water, air, gas etc., a special soft disc should be specified and used.



Fig. 438
Renewable Composition Disc

Medium and Extra-Heavy Globe, Angle and Cross Valves

Iron-Body, Bronze-Mounted — Bronze-Faced Disc

Sizes and List Prices

Medium, Globe, Angle and Cross Valves—Steam, 175 lb.; Water, 250 lb.

Size.....Inches	2	2½	3	3½	4	4½	5	6	7	8	10	12
Fig. 181—Globe, Fig. 183—Angle, screwed	$13.00	$16.00	$20.00	$24.00	$28.00	$35.00	$42.00	$ 50.00	$ 80.00	$ 90.00	$135.00	$190.00
Fig. 185—Cross, screwed	18.00	22.00	27.00	32.00	37.00	45.00	54.00	65.00	100.00	115.00	185.00	260.00
Fig. 182—Globe, Fig. 184—Angle, flanged	15.00	18.00	23.00	28.00	33.00	40.00	47.00	55.00	85.00	95.00	145.00	200.00
Fig. 186—Cross, flanged	21.00	25.00	31.00	37.00	43.00	52.00	60.00	72.00	107.00	122.00	195.00	275.00

Extra Heavy Globe, Angle and Cross Valves—Steam, 250 lb.; Water, 400 lb.

Fig. 862—Globe, Fig. 864—Angle, screwed	$26.00	$33.00	$37.00	$42.00	$46.00	$56.00	$61.00	$ 75.00	$ 95.00	$114.00	$190.00	.....
Fig. 866—Cross, screwed	33.00	40.00	45.00	50.00	55.00	70.00	75.00	95.00	.....	.....	.....	.....
Fig. 863—Globe, Fig. 865—Angle, flanged	27.50	35.00	40.00	45.00	50.00	60.00	65.00	80.00	100.00	120.00	200.00	.....
Fig. 867—Cross, flanged	35.00	43.00	50.00	55.00	60.00	75.00	80.00	100.00	125.00	150.00	250.00	.....
Fig. 863-E—Globe, flanged, with by-pass	.....	.....	.....	.....	.....	.....	.....	110.00	130.00	150.00	250.00	.....
Fig. 865-E—Angle, flanged, with by-pass	.....	.....	.....	.....	.....	.....	.....	110.00	130.00	150.00	250.00	.....
Fig. 867-E—Cross, flanged, with by-pass	.....	.....	.....	.....	.....	.....	.....	130.00	155.00	180.00	300.00	.....

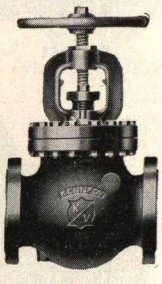


Fig. 863

Cylinder-Operated Gate Valves

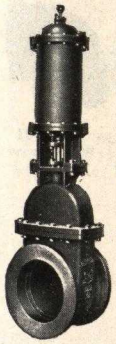


Fig. 611F

Cylinders can be used on all Kennedy valves of 6-in. size and larger.

Operated by water, steam or air pressure.

Cylinders are either bronze or bronze-lined. Tail rod through outer end indicates whether closed or open.

Price on application, stating operating pressure, whether water, air or steam to be used in cylinder. Also if valve is to be placed in vertical or horizontal position.

Electrically Operated Gate Valves

Have the single unit system of control.
Can be attached to valves now in service.
Valves cannot overtravel nor drift.
Lubrication system automatic.

Price on application. Give voltage, direct or alternating current, diameter of valve, working pressure and service, position of valve on line and where the control will be.

Hand operation in case of failure of the current supply.

Direct current for 110 and 220 volts. The units also use 110 volts A. C. Alternating current for 110 and 220 volts, 25-60 cycles, single phase, or 110-440 volts, 60 cycles only, three phase.

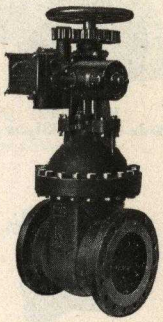


Fig. 782G

Floor Stands

Iron-body, bronze-mounted, with steel stem.

Height, 36 in. from floor to hand wheel.

Extension stem extra; can be made in any length.

Can furnish twin floor stands for valve with by-pass.

Fig. 118 Rising stem, list price.....$20.00

Fig. 119C Stationary stem, indicator, list price..... 27.00

Fig. 119 Stationary stem, without indicator, list price..... 20.00



Fig. 119C

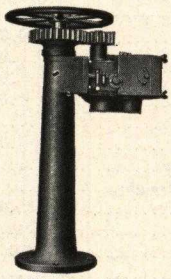


Fig. 118AG

Special Floor Stands

Iron-body, bronze-mounted, with steel stem.

Fig. 118AG Rising stem, spur gears, with electrical control.

Fig. 118B Rising stem, bevel gears and crank.

State style stand, size valve, distance of valve center to floor level, whether inside screw, or O. R. S. & Y., and whether gate or globe valve.

Give size of stem; if globe valve, give the lift.

Kennedy Improved "Newtype" Fire Hydrant

Conform with American Waterworks Association Specifications



Fig. 1120

Compression type balata inlet valve, operated by straight-line mechanism, and closing in direction of pressure from main. Open area larger than nominal size of hydrant.

Double automatic leather-faced drain valve.

All passages designed for minimum friction loss.

All operating parts fully enclosed, but readily accessible.

Adjustable for change of grade without excavating elbow to water main.



Fig. 1100

Fig. 1080 with two 2½-inch hose nozzles. With more than two hose nozzles, each nozzle extra.

Fig. 1100 with two 2½-inch hose gate valves bolted on outside.

Fig. 1120 with steamer and two 2½-inch hose nozzles.

Fig. 1130 Hydrant (not illustrated) with two 2½-inch inside independent valves.

Fire Hydrants made in 4-inch, 5-inch and 6-inch sizes.

Kennedy "Safetop" Fire Hydrant



Fig. 1280 "Safetop" Fire Hydrant

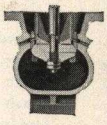
If accidentally broken by colliding vehicle, can be returned to service by one man, within half an hour, at a total material and labor cost of less than $10.00, and without excavating or interruption to water service. The only parts broken by collision are a standpipe breaking ring and stem coupling located a few inches above the ground level. Hydrant top can be rotated so that nozzles face exactly as desired. Inlet and drain valves and operating mechanism same as in Kennedy Improved NEWTYPE Fire Hydrant.

Actual diameter inlet valve, 4 5/16, 5 3/8 or 6¼-inch.

Inside diameter of Standpipe, 4-inch size, 7 inches; 5-inch and 6-inch sizes, 8½ inches.

Blue prints and prices furnished for any model.

Thread on hose and steamer connections, unless otherwise stated, will be National Standard.



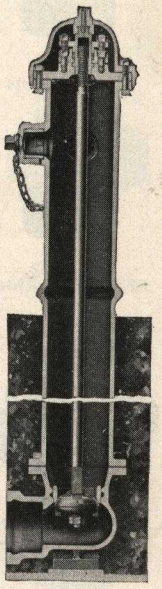


Fig. 1080

Inquiries or orders should state number and size of nozzles, depth of trench; size of main and whether bell, screw or flange connection, size of inlet valve, direction to open and size and shape of operating nut.

Cast Iron Extension Valve Boxes and Valve Wrenches



Fig. 121

Screw type extension boxes enable tops to be placed flush with ground. Lower and upper screw hollow tubes should overlap not less than six inches.

In ordering specify size of valve, depth of trench and whether lettering "Water" or "Gas" is desired on top.

List Price Extension Valve Boxes Fig. 121

3 feet	$10.00	6 feet	$14.75
3½ feet	10.65	6½ feet	15.65
4 feet	11.50	7 feet	16.50
4½ feet	12.25	7½ feet	17.75
5 feet	13.25	8 feet	18.60
5½ feet	14.00	8½ feet	19.60

Wrenches or Keys Fig. 122

$6.00 each net

Price for wrenches for use with valves set in 5 feet or shallower trench. For each foot or fractional foot increased length, add 40c net per foot.

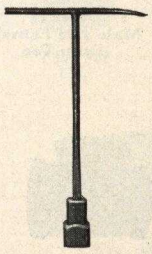


Fig. 122



Fig. 306
Side Outlet Elbow



Fig. 305
45° Street Elbow



Fig. 304
90° Street Elbow



Fig. 303
60° Elbow



Fig. 302
45° Elbow



Fig. 301
90° Elbow



Fig. 307
Female Drop Elbow



Fig. 308
Male and Female
Drop Elbow



Fig. 309
Face Bushing



Fig. 332
Shoulder Bushing



Fig. 310
Long Drop Elbow



Fig. 311
Male and Female
Drop Tee

Piece Price List

Effective March 3, 1930

Standard Malleable-Iron Fittings—Unions—Plugs and Bushings

BLACK

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6
Elbows, 90° Straight	$0.05	$0.05	$0.06	$0.07	$0.10	$0.13	$0.20	$0.25	$0.40	$0.72	$1.00	$1.50	$1.80	$3.25	$4.65
Elbows, 90° Reducing	.....	.06	.07	.08	.11	.14	.22	.28	.44	.80	1.10	1.65	2.00	.....	.....
Elbows, 90° R. & L.	.....	.06	.07	.08	.12	.15	.23	.29	.46	.....	.....	.....	.....	.....	.....
Elbows, 45°	.06	.06	.07	.09	.12	.16	.24	.30	.48	.86	1.20	1.80	2.20	3.90	5.60
Elbows, 60°	.....	.....	.....	.....	.....	.....	.....	.40	.62	.....	.....	.....	.....	.....	.....
Elbows, Female Drop, Straight	.....	.07	.08	.12	.18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Elbows, M. & F. Drop, Straight	.....	.....	.08	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Elbows, M. & F. Long Drop, Straight	.....	.....	.10	.15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Elbows, 90° Street, Straight	.06	.06	.07	.08	.12	.15	.23	.29	.46	.83	1.15	.....	2.10	.....	.....
Elbows, 90° Street, Reducing	.....	.....	.....	.....	.13	.17	.25	.32	.51	.....	.....	.....	.....	.....	.....
Elbows, 45° Street	.....	.....	.08	.10	.14	.18	.28	.35	.55	.....	.....	.....	.....	.....	.....
Elbows, Side Outlet, Straight	.....	.....	.12	.14	.20	.26	.40	.50	.80	.....	.....	.....	.....	.....	.....
Tees, Straight	.07	.07	.08	.10	.13	.17	.26	.33	.52	.90	1.30	2.00	2.40	4.25	6.00
Tees, Reducing	.....	.08	.09	.11	.15	.19	.29	.37	.57	1.00	1.45	2.20	2.65	4.70	6.60
Tees, Street, Straight	.....	.....	.09	.12	.15	.20	.30	.38	.60	.....	.....	.....	.....	.....	.....
Tees, Street, Reducing	.....	.....	.....	.....	.....	.22	.33	.42	.66	.....	.....	.....	.....	.....	.....
Tees, Four-Way	.....	.....	.16	.20	.26	.34	.52	.66	1.05	.....	.....	.....	.....	.....	.....
Tees, Female Drop, Straight	.....	.....	.10	.15	.22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tees, Female Drop, Reducing	.....	.....	.....	.17	.24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tees, M. & F. Drop, Straight	.....	.....	.10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Crosses, Straight	.....	.09	.11	.13	.18	.23	.35	.44	.70	1.25	1.75	2.65	3.15	5.70	8.15
Crosses, Reducing	.....	.....	.....	.14	.20	.25	.38	.48	.77	1.40	1.95	.....	3.45	.....	.....
Caps	.03	.03	.04	.05	.08	.10	.13	.18	.25	.40	.60	.80	1.10	1.80	2.70
45° Y Branches, Straight	.....	.....	.....	.14	.18	.25	.40	.57	.85	1.55	2.80	.....	4.80	.....	.....
45° Y Branches, Reducing	.....	.....	.....	.....	.....	.....	.....	.....	.95	.....	.....	.....	.....	.....	.....
Locknuts, Hexagonal	.02	.02½	.02½	.03	.04	.06	.08	.10	.12	.30	.38	.43	.48	.....	.....
Return Bends, Close, R. H.	.....	.....	.....	.16	.18	.24	.36	.49	.80	.....	.....	.....	.....	.....	.....
Return Bends, Medium, R. H.	.....	.....	.....	.17	.20	.26	.40	.55	.88	.....	.....	.....	.....	.....	.....
Return Bends, Open, R. H.	.....	.....	.....	.19	.22	.29	.44	.62	1.00	1.45	2.15	.....	.....	.....	.....
Return Bends, Close, R. & L.	.....	.....	.....	.18	.21	.28	.42	.56	.92	.....	.....	.....	.....	.....	.....
Return Bends, Medium, R. & L.	.....	.....	.....	.19	.23	.30	.46	.63	1.00	.....	.....	.....	.....	.....	.....
Return Bends, Open, R. & L.	.....	.....	.....	.22	.26	.34	.51	.70	1.15	1.65	2.45	.....	.....	.....	.....
Waste Nuts	.....	.03	.04	.04	.05	.06	.11	.25	.41	.....	.....	.....	.....	.....	.....
Couplings, Reducing	.....	.05	.05	.06	.09	.12	.15	.18	.28	.50	.75	1.10	1.40	.....	.....
Couplings, R. H., Straight	.05	.05	.05	.06	.09	.12	.16	.21	.34	.60	.85	1.25	1.50	.....	.....
Couplings, R. & L., Straight	.....	.05	.05	.06	.09	.12	.16	.21	.34	.....	.....	.....	.....	.....	.....
Extension Pieces	.....	.....	.05	.07	.11	.16	.18	.23	.33	.....	.....	.....	.....	.....	.....
Wall Plates	.....	.....	.14	.18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chandelier Hooks, Male or Female	.....	.....	.07	.09	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chandelier Loops, Male	.....	.....	.07	.09	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Crossovers	.....	.....	.....	.20	.30	.45	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wash Tray Tees, Std.	.....	.....	.....	.....	.....	(Furnished "Galvanized" only)									
Wash Tray Tees, Long	.....	.....	.....	.....	.....	(Furnished "Galvanized" only)									
Unions, Standard, Female	.18	.18	.20	.22	.27	.33	.46	.58	.75	1.55	2.10	3.65	4.35	.....	.....
Unions, Standard, Two-Third	.....	.12	.14	.16	.19	.22	.30	.40	.50	1.00	1.40	2.40	3.00	.....	.....
Unions, Standard, Male and Female	.....	.23	.25	.28	.33	.40	.57	.72	.95	1.95	.....	.....	.....	.....	.....
Bushings, Shoulder	.....	.04	.04	.04	.05	.06	.07	.09	.14	.21	.30	.40	.50	.93	1.25
Bushings, Face	.....	.....	.08	.09	.11	.13	.17	.22	.32	.48	.70	1.20	1.50	2.60	3.75
Plugs, Square Head (Cast Iron)	.02	.02	.02	.02	.03	.04	.05	.07	.10	.18	.25	.38	.42	.88	1.20
Plugs, Countersunk (Cast Iron)	.....	.04	.04	.04	.06	.08	.09	.11	.15	.30	.40	.92	1.10	2.00	3.50
Boiler Union Elbows	.....	.....	.....	.....	.....	(Furnished "Galvanized" only)									
Boiler Union Couplings	.....	.....	.....	.....	.....	(Furnished "Galvanized" only)									

Reducing Fittings not listed, in Kennedy Booklet (copy on request) are non-standard.
For Non-Standard Reducing Sizes add 25% to Standard Reducing List Prices.



Fig. 312
Tee



Fig. 313
Street Tee



Fig. 314
Four-Way Tee



Fig. 315
Drop Tee



Fig. 316
Cross Over



Fig. 319
Cross



Fig. 382
Square Head
Plug (Cast Iron)



Fig. 381
Countersunk
Plug (Cast Iron)



Fig. 368
Wash Tray Tee
Short or Standard



Fig. 365
Extension Piece



Fig. 360
Wall Plate

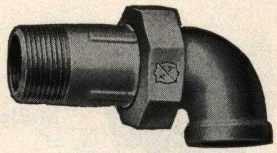


Fig. 355
Circulating
Boiler Elbow

Piece Price List

Effective March 3, 1930

Standard Malleable-Iron Fittings—Unions—Plugs and Bushings

GALVANIZED

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6
Elbows, 90° Straight	$0.07	$0.07	$0.08	$0.09	$0.13	$0.17	$0.26	$0.33	$0.52	$0.95	$1.30	$1.95	$2.35	$4.25	$6.05
Elbows, 90° Reducing	.....	.08	.09	.10	.14	.18	.29	.36	.57	1.05	1.45	2.15	2.60	.....	.....
Elbows, 90° R. and L.	.....	.08	.09	.10	.16	.20	.30	.38	.60	.....	.....	.....	.....	.....	.....
Elbows, 45°	.08	.08	.09	.12	.16	.21	.31	.39	.62	1.10	1.55	2.35	2.85	5.10	7.30
Elbows, 60°	.....	.....	.....	.....	.....	.....	.....	.52	.80	.....	.....	.....	.....	.....	.....
Elbows, Female Drop, Straight	.....	.09	.11	.16	.23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Elbows, M. & F. Drop, Straight	.....	.....	.11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Elbows, M. & F. Long Drop, Straight	.....	.....	.13	.20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Elbows, 90° Street, Straight	.08	.08	.09	.10	.16	.20	.30	.38	.60	1.10	1.50	.....	2.75	.....	.....
Elbows, 90° Street, Reducing	.....	.....	.....	.....	.17	.22	.33	.42	.66	.....	.....	.....	.....	.....	.....
Elbows, 45° Street	.....	.....	.10	.13	.18	.23	.36	.46	.72	.....	.....	.....	.....	.....	.....
Elbows, Side Outlet, Straight	.....	.....	.16	.18	.26	.34	.52	.65	1.05	.....	.....	.....	.....	.....	.....
Tees, Straight	.09	.09	.10	.13	.17	.22	.34	.43	.68	1.20	1.70	2.60	3.10	5.55	7.80
Tees, Reducing	.....	.10	.12	.14	.20	.25	.38	.48	.75	1.30	1.90	2.85	3.45	6.10	8.60
Tees, Street, Straight	.....	.....	.12	.16	.20	.26	.39	.50	.78	.....	.....	.....	.....	.....	.....
Tees, Street, Reducing	.....	.....	.....	.....	.....	.29	.43	.55	.86	.....	.....	.....	.....	.....	.....
Tees, Four-Way	.....	.....	.21	.26	.34	.44	.68	.86	1.35	.....	.....	.....	.....	.....	.....
Tees, Female Drop, Straight	.....	.....	.13	.20	.28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tees, Female Drop, Reducing	.....	.....	.....	.22	.31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tees, M. & F. Drop, Straight	.....	.....	.13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Crosses, Straight	.....	.12	.14	.17	.23	.30	.46	.57	.90	1.65	2.30	3.45	4.10	7.40	10.60
Crosses, Reducing	.....	.....	.....	.18	.26	.33	.50	.62	1.00	1.85	2.55	.....	4.50	.....	.....
Caps	.04	.04	.05	.07	.10	.13	.17	.23	.33	.52	.78	1.05	1.45	2.35	3.50
45° Y Branches, Straight	.....	.....	.....	.18	.23	.33	.52	.75	1.10	2.00	3.65	.....	6.25	.....	.....
45° Y Branches, Reducing	.....	.....	.....	.....	.....	.....	.....	.....	1.25	.....	.....	.....	.....	.....	.....
Locknuts, Hexagonal	.03	.03½	.03½	.04	.05	.08	.10	.13	.16	.39	.50	.56	.62	.....	.....
Return Bends, Close, R. H.	.....	.....	.....	.21	.23	.31	.47	.64	1.05	.....	.....	.....	.....	.....	.....
Return Bends, Medium, R. H.	.....	.....	.....	.22	.26	.34	.52	.72	1.15	.....	.....	.....	.....	.....	.....
Return Bends, Open, R. H.	.....	.....	.....	.25	.29	.38	.57	.80	1.30	1.90	2.80	.....	.....	.....	.....
Return Bends, Close, R. & L.	.....	.....	.....	.23	.27	.36	.55	.73	1.20	.....	.....	.....	.....	.....	.....
Return Bends, Medium, R. & L.	.....	.....	.....	.25	.30	.39	.60	.82	1.30	.....	.....	.....	.....	.....	.....
Return Bends, Open, R. & L.	.....	.....	.....	.29	.34	.44	.66	.90	1.50	2.15	3.20	.....	.....	.....	.....
Waste Nuts	.....	.04	.05	.05	.07	.08	.14	.33	.53	.....	.....	.....	.....	.....	.....
Couplings, Reducing	.....	.07	.07	.08	.12	.16	.20	.23	.36	.65	1.00	1.45	1.85	.....	.....
Couplings, R. H., Straight	.07	.07	.07	.08	.12	.16	.21	.27	.44	.78	1.10	1.60	1.95	.....	.....
Couplings, R. & L., Straight	.....	.07	.07	.08	.12	.16	.21	.27	.44	.....	.....	.....	.....	.....	.....
Extension Pieces	.....	.....	.07	.09	.14	.21	.23	.30	.43	.....	.....	.....	.....	.....	.....
Wall Plates	.....	.....	.....	.....	.....	..(Furnished "Black" only)...								.....	.....
Chandelier Hooks, Male or Female	.....	.....	.....	.....	.....	..(Furnished "Black" only)...								.....	.....
Chandelier Loops, Male	.....	.....	.....	.....	.....	..(Furnished "Black" only)...								.....	.....
Crossovers	.....	.....	.....	.25	.40	.60	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wash Tray Tees, Std.	.....	.....	.....	.20	.30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wash Tray Tees, Long	.....	.....	.....	.25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unions, Standard, Female	.27	.27	.30	.33	.40	.50	.70	.90	1.15	2.35	3.15	5.50	6.50	.....	.....
Unions, Standard, Two-Third	.....	.18	.20	.22	.25	.35	.50	.60	.75	1.60	2.10	3.70	4.35	.....	.....
Unions, Standard, Male and Female	.....	.32	.35	.39	.46	.57	.81	1.04	1.35	2.75	.....	.....	.....	.....	.....
Bushings, Shoulder	.....	.08	.08	.08	.10	.12	.14	.18	.28	.42	.60	.80	1.00	1.85	2.50
Bushings, Face	.....	.....	.12	.14	.17	.20	.25	.33	.48	.72	1.05	1.80	2.25	3.90	5.60
Plugs, Square Head (Cast Iron)	.04	.04	.04	.04	.06	.08	.10	.14	.20	.36	.50	.76	.84	1.75	2.40
Plugs, Countersunk (Cast Iron)	.....	.....	.....	.....	.....	..(Furnished "Black" only)...								.....	.....

Size.....Inches	¾ x ¾ x 1	¾ x ½ x 1	½ x ½ x 1
Boiler Union Elbows	$0.75	$0.75	$0.60
Boiler Union Couplings	.75	.75	.60

Reducing Fittings not listed, in Kennedy Booklet (copy on request) are non-standard.
For Non-Standard Reducing Sizes add 25% to Standard Reducing List Prices.



Fig. 359
Waste Nut



Fig. 358
Boiler Coupling

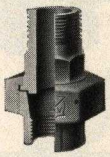


Fig. 348
Male and Female
Union

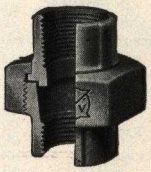


Fig. 346
Female Union



Fig. 334
Y-Branch



Fig. 331
Lock-Nut



Fig. 328
Cap



Fig. 320
Close Return
Bend

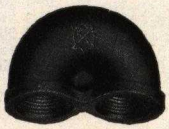


Fig. 321
Medium Return
Bend



Fig. 322
Open Return
Bend



Fig. 324
R. H. Coupling



Fig. 325
R. & L. Coupling



Fig. 327
Reducing
Coupling



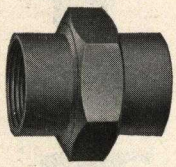
Elbow



Tee



Cross



Ground Joint Union

Standard Brass Fittings

Malleable Flat Band Pattern

Sizes and List Prices

Iron Pipe Size

Size ..... Inches	ROUGH												
	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Elbows, 90° ..... Each	$0.12	$0.15	$0.20	$0.28	$0.40	$0.63	$0.90	$1.20	$2.00	$3.50	$ 6.00	$ 8.00	$10.00
Elbows, 90° reducing* ..... Each	.....	.19	.25	.35	.50	.80	1.10	1.50	2.50	4.25	7.50	10.00	12.50
Elbows, 45° ..... Each	.16	.20	.25	.31	.40	.63	.90	1.20	2.00	3.50	6.00	8.00	10.00
Elbows, 90° street ..... Each	.25	.27	.33	.48	.63	.85	1.50	2.00	3.25	6.00	10.00	14.00	17.00
Elbows, 45° street ..... Each	.....	.....	.42	.60	.80	1.10	1.95	2.50	4.10	.....	.....	.....	.....
Elbows, 60° (plain) ..... Each	.....	.....	.....	.....	.....	.....	1.40	1.90	3.15	.....	.....	.....	.....
Elbows, drop, female ..... Each	.....	.30	.35	.45	.65	.....	.....	.....	.....	.....	.....	.....	.....
Elbows, male and female, drop ... Each	.....	.....	.45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Elbows, male & female, long drop .. Each	.....	.....	.55	.70	.....	.....	.....	.....	.....	.....	.....	.....	.....
Elbows, side outlet ..... Each	.....	.....	.60	.85	1.20	1.90	2.75	3.60	6.00	.....	.....	.....	.....
Tees ..... Each	.17	.21	.28	.40	.55	.85	1.25	1.70	2.80	5.00	8.50	11.00	14.00
Tees, reducing* ..... Each	.....	.25	.35	.50	.70	1.05	1.55	2.10	3.50	6.25	10.50	14.00	17.50
Tees, street ..... Each	.....	.....	.44	.63	.90	1.35	1.95	2.65	4.40	.....	.....	.....	.....
Tees, drop, female ..... Each	.....	.....	.43	.57	.80	.....	.....	.....	.....	.....	.....	.....	.....
Tees, male and female, drop ..... Each	.....	.....	.55	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tees, 4-way ..... Each	.....	.....	.90	1.20	1.65	2.50	3.75	5.00	8.50	.....	.....	.....	.....
Tees, wash tray, standard ..... Each	.....	.....	.....	.80	1.35	.....	.....	.....	.....	.....	.....	.....	.....
Tees, wash tray, long ..... Each	.....	.....	.....	1.05	.....	.....	.....	.....	.....	.....	.....	.....	.....
Crosses ..... Each	.....	.30	.40	.55	.80	1.25	1.80	2.40	4.00	7.00	12.00	16.00	20.00
Crosses, reducing* ..... Each	.....	.....	.....	.70	1.00	1.55	2.25	3.00	5.00	8.75	15.00	.....	25.00
Crossovers ..... Each	.....	.....	.....	.72	1.00	1.30	.....	.....	.....	.....	.....	.....	.....
Caps ..... Each	.10	.13	.16	.20	.30	.42	.60	.80	1.25	2.50	3.50	5.50	7.00
Couplings ..... Each	.10	.13	.17	.25	.37	.55	.80	1.00	1.60	2.50	3.50	5.25	7.00
Couplings, right and left ..... Each	.....	.17	.22	.30	.45	.70	1.00	1.30	2.00	.....	.....	.....	.....
Reducers* ..... Each	.....	.15	.20	.28	.40	.60	.90	1.10	1.75	2.75	4.00	6.00	8.00
Return bends, close ..... Each	.....	.....	.....	.70	1.00	1.25	1.80	2.50	4.25	.....	.....	.....	.....
Center to center, close ..... Inches	.....	.....	.....	1	1 1/4	1 1/2	1 3/4	2 3/16	2 5/8	.....	.....	.....	.....
Return bends, open ..... Each	.....	.....	.....	.80	1.10	1.40	2.15	3.00	4.75	8.25	11.00	.....	.....
Center to center, open ..... Inches	.....	.....	.....	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	.....	.....
45° Y Branches ..... Each	.....	.....	.....	.75	1.10	1.65	2.50	3.30	5.50	9.50	16.00	.....	26.00
Extension pieces ..... Each	.....	.....	.27	.40	.55	.85	1.25	1.50	2.45	.....	.....	.....	.....
Lock-nuts ..... Each	.10	.10	.12	.15	.20	.28	.40	.55	.80	1.75	2.75	4.00	5.00
Waste nuts ..... Each	.....	.30	.38	.48	.63	.70	1.10	1.75	2.50	.....	.....	.....	.....
Plugs ..... Each	.08	.10	.12	.15	.20	.30	.45	.60	.95	1.50	2.25	3.75	5.00
Solid plugs ..... Each	.....	.....	.18	.22	.30	.45	.80	1.20	1.90	3.00	4.50	7.50	10.00
Countersunk plugs ..... Each	.....	.....	.....	.22	.30	.45	.65	.90	1.40	.....	.....	.....	.....
Bushings* ..... Each	.....	.10	.12	.15	.22	.35	.50	.70	1.00	1.50	2.50	3.75	5.00
Face Bushings* ..... Each	.....	.12	.15	.19	.27	.44	.62	.87	1.25	1.85	3.10	4.75	6.25
Unions, rough ..... Each	.40	.50	.65	.85	1.15	1.60	2.25	2.70	4.00	7.50	11.50	.....	.....
Unions, semi-finish ..... Each	.45	.55	.75	.95	1.30	1.75	2.50	3.00	4.50	8.25	12.75	22.50	30.00

Size ..... Inches	FINISHED													FINISHED AND NICKEL PLATED											
	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Elbows, 90° ..... Each	.30	.35	.45	.56	.75	1.10	1.55	2.00	3.00	5.50	9.00	14.00	17.50	.36	.42	.53	.65	.87	1.25	1.75	2.25	3.35	6.15	10.00	16.00	20.00
Elbows, 90°, reducing* ..... Each	.....	.44	.55	.70	.95	1.40	1.90	2.50	3.75	6.75	11.25	17.50	22.00	.....	.52	.65	.82	1.10	1.60	2.15	2.85	4.15	7.60	12.50	20.00	25.00
Elbows, 45° ..... Each	.38	.45	.55	.66	.85	1.23	1.70	2.20	3.25	6.00	9.75	15.50	19.50	.45	.53	.65	.78	1.00	1.43	1.95	2.55	3.65	6.85	11.00	18.00	22.50
Elbows, 90°, street ..... Each	.47	.52	.63	.83	1.08	1.45	2.30	3.00	4.50	8.50	13.75	22.00	27.50	.54	.60	.73	.95	1.23	1.65	2.55	3.35	4.90	9.50	15.00	25.00	31.50
Elbows, 45°, street ..... Each	.....	.....	.81	1.15	1.55	2.15	3.00	3.75	6.10	.....	.....	.....	.....	.....	.....	1.00	1.45	1.95	2.70	3.75	4.70	7.60	.....	.....	.....	.....
Elbows, 60° (plain) ..... Each	.....	.....	.....	.....	.....	.....	2.40	3.20	4.75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.00	4.00	6.00	.....	.....	.....	.....
Elbows, drop, female ..... Each	.....	.65	.85	1.05	1.40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.80	1.00	1.25	1.65	.....	.....	.....	.....	.....	.....	.....	.....
Elbows, male and female, drop ..... Each	.....	.....	1.15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Elbows, male and female, long drop. Each	.....	.....	1.40	1.75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.75	2.20	.....	.....	.....	.....	.....	.....	.....	.....	.....
Elbows, side outlet ..... Each	.....	.....	1.35	1.70	2.25	3.30	4.70	6.00	9.00	.....	.....	.....	.....	.....	.....	1.60	2.00	2.60	3.75	5.35	6.80	10.00	.....	.....	.....	.....
Tees ..... Each	.42	.49	.63	.80	1.05	1.50	2.15	2.80	4.20	7.75	12.75	19.50	24.50	.50	.58	.75	.93	1.22	1.70	2.45	3.15	4.65	8.65	14.00	22.30	28.00
Tees, reducing* ..... Each	.....	.60	.77	1.00	1.30	1.85	2.65	3.50	5.25	9.75	15.80	24.50	30.50	.....	.72	.90	1.15	1.50	2.10	3.00	3.95	5.85	10.90	17.50	28.00	35.00
Tees, street ..... Each	.....	.....	.95	1.30	1.80	2.45	3.60	4.50	6.60	.....	.....	.....	.....	.....	.....	1.20	1.65	2.25	3.05	4.50	5.65	8.25	.....	.....	.....	.....
Tees, drop, female ..... Each	.....	.....	1.13	1.37	1.80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.33	1.62	2.15	.....	.....	.....	.....	.....	.....	.....	.....
Tees, male and female, drop ..... Each	.....	.....	1.40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tees, 4-way ..... Each	.....	.....	1.70	2.05	2.70	3.90	5.70	7.40	11.50	.....	.....	.....	.....	.....	.....	2.00	2.35	3.05	4.35	6.35	8.20	12.50	.....	.....	.....	.....
Tees, wash tray, standard ..... Each	.....	.....	.....	2.00	3.40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.50	4.25	.....	.....	.....	.....	.....	.....	.....	.....
Tees, wash tray, long ..... Each	.....	.....	.....	2.65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.30	.....	.....	.....	.....	.....	.....	.....	.....	.....
Crosses ..... Each	.....	.70	.90	1.10	1.50	2.20	3.10	4.00	6.00	11.00	18.00	28.00	35.00	.....	.84	1.05	1.30	1.75	2.50	3.50	4.50	6.70	12.30	20.00	32.00	40.00
Crosses, reducing* ..... Each	.....	.....	.....	1.40	1.85	2.75	3.85	5.00	7.50	13.75	22.50	.....	44.00	.....	.....	.....	1.65	2.15	3.15	4.35	5.70	8.30	15.40	25.00	.....	50.00
Crossovers ..... Each	.....	.....	.....	1.80	2.50	3.25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.25	3.15	4.05	.....	.....	.....	.....	.....	.....	.....
Caps ..... Each	.20	.25	.31	.40	.55	.77	1.10	1.50	2.25	4.00	5.50	8.00	10.00	.23	.29	.36	.47	.63	.89	1.25	1.75	2.60	4.50	6.15	8.85	11.00
Couplings ..... Each	.24	.28	.36	.46	.63	.90	1.30	1.60	2.35	4.00	5.75	9.75	12.50	.29	.33	.42	.53	.72	1.00	1.45	1.80	2.60	4.50	6.50	11.25	14.25
Couplings, right and left ..... Each	.....	.37	.47	.58	.80	1.15	1.65	2.10	3.00	.....	.....	.....	.....	.....	.44	.55	.67	.92	1.30	1.85	2.35	3.35	.....	.....	.....	.....
Reducers* ..... Each	.....	.35	.45	.56	.75	1.05	1.55	1.90	2.75	4.75	7.00	12.00	15.50	.....	.42	.53	.65	.87	1.20	1.75	2.15	3.10	5.40	8.00	14.00	18.00
Return Bends, close ..... Each	.....	.....	.....	1.55	2.05	2.65	3.75	4.90	7.25	.....	.....	.....	.....	.....	.....	.....	1.85	2.40	3.10	4.40	5.70	8.25	.....	.....	.....	.....
Center to center, close ..... Inches	.....	.....	.....	1	1 1/4	1 1/2	1 3/4	2 3/16	2 5/8	.....	.....	.....	.....	.....	.....	.....	1	1 1/4	1 1/2	1 3/4	2 3/16	2 5/8	.....	.....	.....	.....
Return Bends, open ..... Each	.....	.....	.....	1.65	2.15	2.80	4.10	5.40	7.75	14.25	20.00	.....	.....	.....	.....	.....	1.95	2.50	3.25	4.75	6.20	8.75	16.25	23.00	.....	.....
Center to center, open ..... Inches	.....	.....	.....	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	.....	.....	.....	.....	.....	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	.....	.....
45° Y Branches ..... Each	.....	.....	.....	1.60	2.15	3.05	4.45	5.70	8.50	15.50	25.00	.....	41.00	.....	.....	.....	1.90	2.50	3.50	5.10	6.50	9.50	17.50	28.00	.....	46.00
Extension Pieces ..... Each	.....	.....	.62	.80	1.05	1.60	2.15	2.70	4.00	.....	.....	.....	.....	.....	.....	.78	1.00	1.30	2.00	2.70	3.40	5.00	.....	.....	.....	.....
Lock-nuts ..... Each	.24	.25	.32	.40	.50	.65	.85	1.10	1.60	3.25	4.75	6.50	8.00	.29	.30	.39	.48	.60	.77	1.00	1.30	1.85	3.75	5.40	7.35	9.00
Waste Nuts ..... Each	.....	.75	1.00	1.30	1.60	1.75	2.75	3.00	5.00	.....	.....	.....	.....	.....	.95	1.25	1.65	2.00	2.20	3.45	3.75	6.25	.....	.....	.....	.....
Plugs ..... Each	.23	.30	.37	.43	.55	.75	1.00	1.30	1.95	3.00	4.25	6.25	8.00	.28	.37	.45	.52	.67	.90	1.20	1.55	2.30	3.50	4.90	7.10	9.00
Solid Plugs ..... Each	.....	.....	.43	.50	.65	.90	1.35	1.90	2.90	4.50	6.50	10.00	13.00	.....	.....	.51	.59	.77	1.05	1.55	2.15	3.25	5.00	7.15	10.85	14.00
Countersunk Plugs ..... Each	.....	.....	.....	.42	.55	.80	1.15	1.55	2.25	.....	.....	.....	.....	.....	.....	.....	.49	.63	.92	1.30	1.75	2.55	.....	.....	.....	.....
Bushings* ..... Each	.....	.22	.27	.35	.47	.70	1.00	1.40	2.00	3.00	4.50	6.25	8.00	.....	.26	.32	.42	.55	.82	1.15	1.65	2.35	3.50	5.15	7.10	9.00
Unions ..... Each	.50	.60	.85	1.05	1.40	1.90	2.75	3.25	5.00	9.00	14.00	25.00	33.00	.60	.72	1.02	1.26	1.68	2.28	3.30	3.90	6.00	10.80	16.80	30.00	39.60

For right and left return bends and right and left elbows, add 25% to above listed prices.
*For reducers, bushings, elbows, crosses and tees, reducing more than two sizes, add 25% to above listed prices.

Standard Cast Iron Flanged Fittings

Kennedy Standard Cast Iron Flanged Fittings have been carefully designed, and are proportioned to meet every requirement at the pressure for which they are recommended. These fittings are amply strong for working **steam** pressures up to 125 lb. Fittings, 12-in., and smaller, will stand a working **water** pressure of 175 lb., and fittings, 14-in., and larger, will stand a working **water** pressure of 150 lb.


Fig. 200

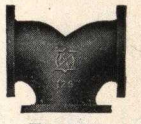

Fig. 201

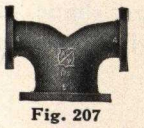

Fig. 202


Fig. 203


Fig. 204


Fig. 205


Fig. 206


Fig. 207

Size Inches	Fig. 200 90° Elbows		Fig. 201 45° Elbows		Tees: Fig. 210 Straight		Tees: Fig. 211 Reducing		Double Sweep Tees: Fig. 212 Straight		Double Sweep Tees: Fig. 213 Reducing		Crosses: Fig. 220 Straight		Crosses: Fig. 221 Reducing	
	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled
1¼	$ 3.00	$ 3.60	$ 3.30	$ 3.90	$ 4.35	$ 5.25	.....	.....	$ 5.90	$ 5.90	.....	.....	$ 6.75	$ 7.95	.....	.....
1½	3.00	3.60	3.30	3.90	4.35	5.25	$ 5.00	$ 5.90	5.00	5.90	.....	.....	6.75	7.95	.....	.....
2	3.00	3.60	3.30	3.90	4.35	5.25	5.00	5.90	5.00	5.90	$ 5.75	$ 6.65	6.75	7.95	$ 7.75	$ 8.95
2½	3.15	3.75	3.50	4.10	4.55	5.45	5.25	6.15	5.25	6.15	6.00	6.90	6.95	8.15	8.00	9.20
3	3.45	4.15	3.80	4.50	5.00	6.10	5.75	6.85	5.75	6.85	6.60	7.70	7.65	9.05	8.75	10.15
3½	4.05	4.90	4.50	5.35	5.85	7.10	6.75	8.00	6.75	8.00	7.75	9.00	9.00	10.70	10.35	12.05
4	4.50	5.50	5.00	6.00	6.50	8.00	7.50	9.00	7.50	9.00	8.65	10.15	10.00	12.00	11.50	13.50
4½	5.50	6.50	6.00	7.00	8.00	9.50	9.25	10.75	9.25	10.75	10.60	12.10	12.00	14.00	13.75	15.75
5	6.25	7.25	6.90	7.90	9.10	10.60	10.50	12.00	10.50	12.00	12.00	13.50	13.75	15.75	15.75	17.75
6	7.60	8.90	8.35	9.65	11.00	12.95	12.65	14.60	12.65	14.60	14.50	16.45	16.75	19.25	19.25	21.75
7	10.50	12.00	11.00	12.50	15.25	17.50	17.50	19.75	17.50	19.75	20.00	22.25	23.00	26.00	26.50	29.50
8	12.00	13.60	12.60	14.20	17.40	19.80	20.00	22.40	20.00	22.40	23.00	25.40	26.50	29.75	30.50	33.75
9	17.00	19.25	17.75	20.00	24.65	28.00	28.50	31.85	28.50	31.85	32.75	36.10	37.50	42.00	43.00	47.50
10	19.00	21.70	20.00	22.70	27.50	31.50	31.50	35.50	31.50	35.50	36.00	40.00	42.00	47.50	48.00	53.50
12	28.00	31.00	29.50	32.50	40.50	45.00	46.50	51.00	46.50	51.00	53.50	58.00	61.50	67.50	71.00	77.00
14	41.50	45.25	41.50	45.25	60.00	65.50	69.00	74.50	69.00	74.50	79.00	84.50	91.00	98.50	105.00	112.50
15	47.00	51.50	47.00	51.50	68.00	74.75	78.00	84.75	78.00	84.75	90.00	96.75	103.00	112.00	118.00	127.00
16	54.50	59.50	54.50	59.50	79.00	86.50	91.00	98.50	91.00	98.50	105.00	112.50	120.00	130.00	138.00	148.00
18	71.00	77.00	71.00	77.00	103.00	112.00	118.00	127.00	118.00	127.00	135.00	144.00	157.00	169.00	180.00	192.00
20	90.00	97.00	90.00	97.00	130.00	140.00	150.00	160.00	150.00	160.00	173.00	183.00	198.00	212.00	228.00	242.00
22	113.00	122.00	113.00	122.00	164.00	177.00	189.00	202.00	189.00	202.00	217.00	230.00	248.00	266.00	285.00	303.00
24	140.00	150.00	140.00	150.00	203.00	218.00	233.00	248.00	233.00	248.00	268.00	283.00	310.00	330.00	355.00	375.00


Fig. 223

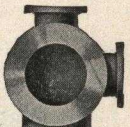

Fig. 222

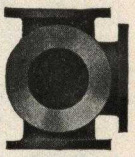

Fig. 221


Fig. 220


Fig. 219


Fig. 218


Fig. 217


Fig. 216

Size Inches	Fig. 202 Long Radius Elbows		Fig. 203, Square Base Elbows / Fig. 204 Round Base Elbows			Fig. 205 Taper Reducing Elbows		Single Sweep Tees: Fig. 214 Straight		Single Sweep Tees: Fig. 215 Reducing		Laterals: Fig. 218 Straight		Laterals: Fig. 219 Reducing	
	Faced	Faced and Drilled	Faced Except Base Flange	Faced and Drilled Except Base Flange	Facing and Drilling Base Flange	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled
2	$ 5.00	$ 5.90	.....	.....	.....	.....	.....	$ 5.00	$ 5.90	.....	.....	$ 6.75	$ 7.95	$ 7.75	$ 8.95
2½	5.25	6.15	.....	.....	.....	.....	.....	5.25	6.15	$ 6.00	$ 6.90	6.95	8.15	8.00	9.20
3	5.75	6.85	.....	.....	.....	$ 6.90	$ 7.60	5.75	6.85	6.60	7.70	7.65	9.05	8.75	10.15
3½	6.75	8.00	.....	.....	.....	8.10	8.95	6.75	8.00	7.75	9.00	9.00	10.70	10.35	12.05
4	7.50	9.00	$ 9.00	$ 10.00	$ 3.00	9.00	10.00	7.50	9.00	8.65	10.15	10.00	12.00	11.50	13.50
4½	9.25	10.75	11.00	12.00	3.00	11.00	12.00	9.25	10.75	10.60	12.10	12.00	14.00	13.75	15.75
5	10.50	12.00	12.50	13.50	3.50	12.50	13.50	10.50	12.00	12.00	13.50	13.75	15.75	15.75	17.75
6	12.65	14.60	15.25	16.55	3.50	15.25	16.55	12.65	14.60	14.50	16.45	16.75	19.25	19.25	21.75
7	17.50	19.75	21.00	22.50	3.50	21.00	22.50	17.50	19.75	20.00	22.25	23.00	26.00	26.50	29.50
8	20.00	22.40	24.00	25.60	5.00	24.00	25.60	20.00	22.40	23.00	25.40	26.50	29.75	30.50	33.75
9	28.50	31.85	34.00	36.25	5.00	34.00	36.25	28.50	31.85	32.75	36.10	37.50	42.00	43.00	47.50
10	31.50	35.50	38.00	40.70	5.00	38.00	40.70	31.50	35.50	36.00	40.00	42.00	47.50	48.00	53.50
12	46.50	51.00	56.00	59.00	7.50	56.00	59.00	46.50	51.00	53.50	58.00	61.50	67.50	71.00	77.00
14	69.00	74.50	70.00	73.75	7.50	70.00	73.75	69.00	74.50	79.00	84.50	91.00	98.50	105.00	112.50
15	78.00	84.75	80.00	84.50	7.50	80.00	84.50	78.00	84.75	90.00	96.75	103.00	112.00	118.00	127.00
16	91.00	98.50	90.00	95.00	7.50	90.00	95.00	91.00	98.50	105.00	112.50	120.00	130.00	138.00	148.00
18	118.00	127.00	105.00	111.00	12.00	105.00	111.00	118.00	127.00	135.00	144.00	157.00	169.00	180.00	192.00
20	150.00	160.00	120.00	127.00	12.00	120.00	127.00	150.00	160.00	173.00	183.00	198.00	212.00	228.00	242.00
22	190.00	203.00	150.00	159.00	12.00	.....	.....	189.00	202.00	217.00	230.00	248.00	266.00	285.00	303.00
24	235.00	250.00	190.00	200.00	12.00	.....	.....	233.00	248.00	268.00	283.00	310.00	330.00	355.00	375.00


Fig. 215


Fig. 214


Fig. 213


Fig. 212


Fig. 211

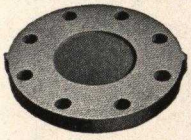

Fig. 210


Fig. 209


Fig. 208

Size Ins.	Double Branch Elbows: Fig. 206 Straight		Double Branch Elbows: Fig. 207 Reducing		Side Outlet Elbows: Fig. 208 Straight		Side Outlet Elbows: Fig. 209 Reducing		Side Outlet Tees: Fig. 216 Straight		Side Outlet Tees: Fig. 217 Reducing		Fig. 222 Taper Reducer		Fig. 223 Eccentric Taper Reducer
	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	$ 6.90	$ 7.60	
3½	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8.10	8.95	
4	$28.50	$ 30.00	$31.50	$ 33.00	$26.50	$ 28.00	$29.50	$ 31.00	$31.00	$ 33.00	$34.00	$ 36.00	9.00	10.00	Prices on application
5	36.00	37.50	39.50	41.00	28.50	30.00	31.50	33.00	35.00	37.00	39.00	41.00	12.50	13.50	
6	38.00	40.00	42.00	44.00	33.00	35.00	36.00	38.00	42.25	45.00	47.25	50.00	15.25	16.55	
7	42.75	45.00	47.75	50.00	40.25	42.50	44.75	47.00	49.50	52.50	55.00	58.00	21.00	22.50	
8	47.50	50.00	52.50	55.00	47.50	50.00	52.50	55.00	56.75	60.00	62.75	66.00	24.00	25.60	
10	66.00	70.00	73.50	77.50	76.00	80.00	84.00	88.00	84.50	90.00	94.50	100.00	38.00	40.70	
12	90.50	95.00	100.50	105.00	100.50	105.00	110.50	115.00	114.00	120.00	126.00	132.00	56.00	59.00	
14	119.50	125.00	132.50	138.00	129.50	135.00	144.50	150.00	142.50	150.00	157.50	165.00	70.00	73.75	
15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	80.00	84.50	
16	142.50	150.00	157.50	165.00	152.50	160.00	167.50	175.00	170.00	180.00	190.00	200.00	90.00	95.00	

Standard and Extra-Heavy Cast Iron Flanges


Fig. 225

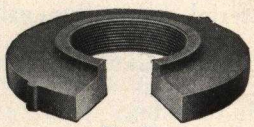

Fig. 41


Fig. 227

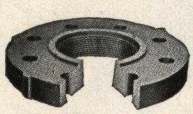

Fig. 44


Fig. 229

We carry a complete line of standard and extra-heavy straight and reducing companion flanges, and plain and ribbed standard and extra-heavy blind flanges. These flanges are furnished either faced only, faced and drilled, or faced, drilled and bolted on.

THE AYLING & REICHERT CO. TOLEDO, OHIO

3047 North Erie Street

No-Sol Floats

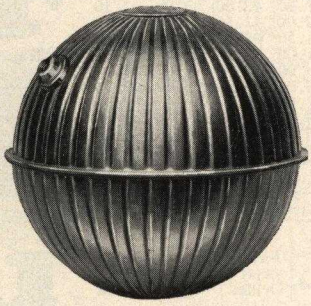
No-Sol Floats are made of heavy gauge sheet copper and are put together in two sections with a rubber washer, seamed in securely. The spuds are of machined yellow brass and are threaded to fit ¼-inch standard float rods.

Standard No-Sol Floats are furnished in sizes of 4 and 5-inch diameter round, and 4x5-inch oval.

Soldered Floats

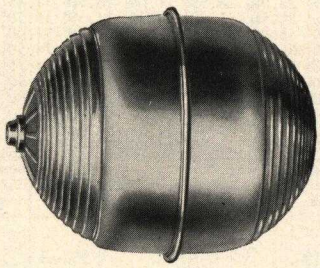
Soldered Floats are furnished in sizes from 1 to 12-inch diameter. Floats 7 inches and smaller have ¼-inch-20 thread in spud; 8-10 inch, ⅛-inch IP thread; 12-inch, ¼-inch IP thread. Special spuds can be furnished.

Special Brass or Copper Floats. Inquiries given prompt attention.



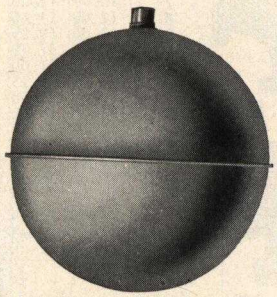
5-Inch Round No-Sol Float

Used for general purposes where extra buoyancy is desired, especially adapted for high tank work.



4x5-Inch Oval No-Sol Float

Specially constructed for low tanks. Will fit the narrowest of tanks used for general purposes and work freely on all makes of valves.



Round Soldered Float With Seam

This type made in sizes 6 to 12 inches diameter from heavy sheet copper with spud firmly attached.

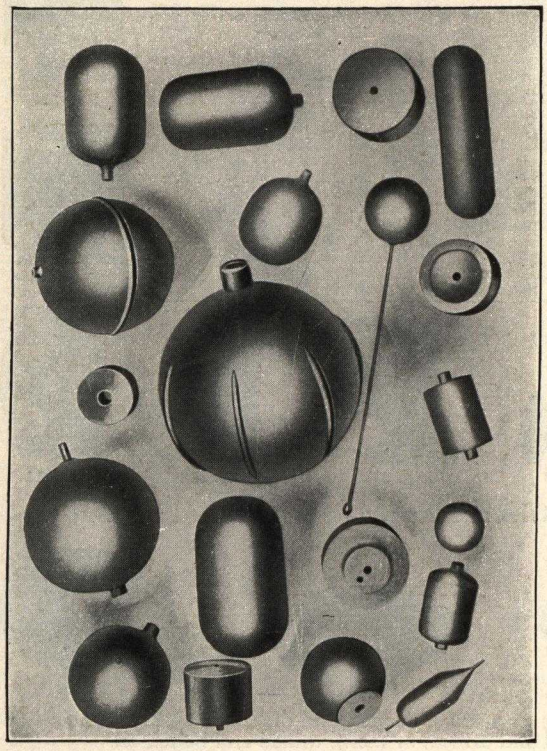
Standard spuds furnished unless otherwise specified.

Float Rods—In ordering rods, specify size and length.

Established 1894

NAUGATUCK MANUFACTURING CO. NAUGATUCK, CONN.

Main Office and Factory—445 North Main Street



Naugatuck Seamless Copper Ball Floats

For Steam Traps—Heavy Pressure

Designed for all purposes where a float is required. Made of pure copper, seamless, and are not subject to electrolysis. Material and workmanship guaranteed. Made in any size, shape, or weight, to withstand any pressure desired. Nickel Floats for extra heavy pressure.

Prices Quoted Upon Application

Specify Size, Quantity, Pressure, and Spud Connection when writing for prices.

Naugatuck Seamless Copper Ball Floats

For Open Tank or Plumbers Use

Made of pure copper, seamless, no solder exposed, not subject to electrolysis. Material and workmanship guaranteed.

Sizes: 1-inch to 20-inch diameter. Many different shapes.

Special sizes made to order.

Nickel-Plated Floats furnished to specifications.

MILWAUKEE VALVE COMPANY

MANUFACTURERS OF

APPROVED

Trade Mark

BRONZE VALVES

FOR WATER, STEAM, AIR, OIL, GAS

"MILVACO" HEATING SPECIALTIES

MILWAUKEE
WISCONSIN
U. S. A.

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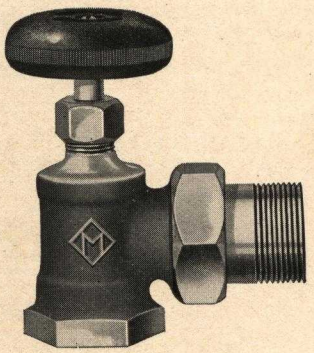
TRADE MARK

MILWAUKEE VALVE COMPANY MILWAUKEE, WIS.

2375 S. Burrell Street

Trade Mark

Milwaukee Standard Radiator Valves



No. 74

Standard Quick Opening Hot Water Radiator Valve. Bonnetless Type Male Union. Will not bind or stick. Large waterway.



No. 202

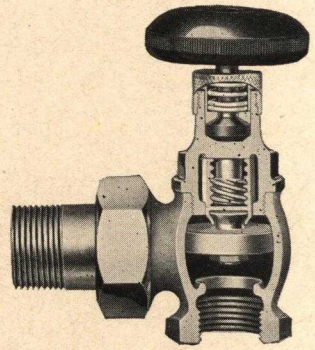
Quick Opening PAK-LES Hot Water Radiator Valve. For "Closed" or "Pressure" Hot Water Heating Systems. Insures against leakage through stuffing nut.

All Valves and Elbows are Nickel Plated With Polished Trimmings



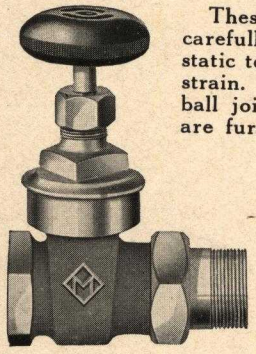
No. 223

Composition Disc Steam Radiator Valve. Angle Pattern with Male Union and high grade renewable disc. 100 lbs. working pressure.



No. 243

Quick Opening PAK-LES Steam Radiator Valve. For working pressures up to 100 lbs. Renewable discs are best grade. Independent plunger gives perfect alignment, permits full flow when valve is open, and leak-proof seating when valve is closed.



No. 414

Radiator Gate Valve. Non-rising Stem. Double Seat. Male Union. 125 lbs. working pressure.

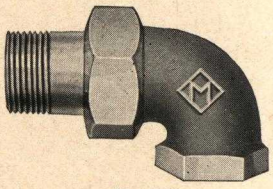
No. 415—Double End Union

These valves are made of selected quality high copper content metal, are carefully machined and given a most rigid inspection and a 300-lb. hydrostatic test. Coupling sets of all valves and elbows designed to permit unusual strain. Union nut is full and heavy, and the strong tail piece with ground ball joint insures a perfect connection for steam or water service. Valves are furnished with knurled grip, non-heating composition handwheels.

List Prices Radiator Valves and Union Elbow

No.	Description	⅜ in.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
74	Quick Opening Hot Water	.....	3.25	3.70	4.50	5.75	7.30	12.00
218	Standard Union Elbow	.....	1.75	2.00	2.50	3.30	4.25	7.20
223	Angle Pattern, Steam	3.70	3.70	4.30	5.10	6.40	8.40	13.60
202	"Pak-Les" Hot Water Valve	.....	3.25	3.70	4.50	5.75	7.30	.....
243	"Pak-Les" Steam Valve	.....	3.70	4.30	5.10	6.40	8.40	.....
304	Globe Pattern, Steam	3.70	3.70	4.30	5.10	6.40	8.40	13.60
305	Globe Pattern, Double Union	3.70	3.70	4.30	5.10	6.40	8.40	13.60
284	R.H. Corner Pattern, Steam	.....	4.10	4.75	5.60	7.05	9.25	15.00
289	L.H. Corner Pattern, Steam	.....	4.10	4.75	5.60	7.05	9.25	15.00
414	Radiator Gate Valve	.....	3.65	4.25	5.20	6.60	9.00	12.80
415	Radiator Gate, Double Union	.....	3.65	4.25	5.20	6.60	9.00	12.80
212	Lock Shield, Hot Water, Angle	.....	3.25	3.70	4.50	5.75	7.30	12.00
268	Lock Shield, Steam, Angle	3.70	3.70	4.30	5.10	6.40	8.40	13.00
271	Keys for Lock Shield Valves	.10	.10	.15	.15	.15	.20	.20

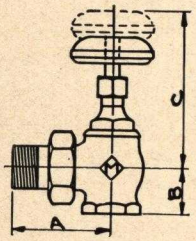
Note—Any type of radiator valve can be furnished in lock shield pattern. To order supplement number of valve by letters "LS."



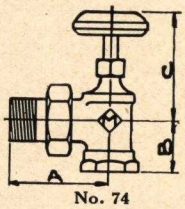
No. 218

Standard Union Elbow for Steam or Water service. Ground joint seat. 100 lbs. working pressure.

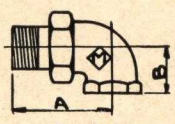
Roughing-in Dimensions



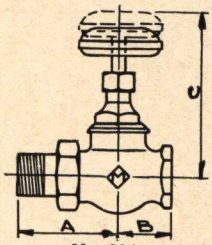
No. 223



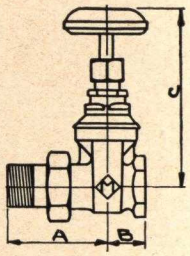
No. 74



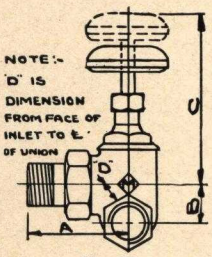
No. 218



No. 304



No. 414



No. 289

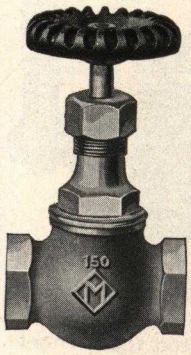
Size Inches	Nos. 223 and 243			Nos. 74 and 202			No. 218		No. 304		
	A	B	C	A	B	C	A	B	A	B	C
½	2¼	1 3/16	4	2¼	1	3 5/8	2¼	1	2¼	1 1/8	4
¾	2¾	1 3/16	4 5/16	2¾	1¼	3	2¾	1 1/8	2¾	1 5/16	4¾
1	3	1 3/8	4 7/8	3	1½	3¼	3	1 3/8	3	1½	5
1¼	3½	1 5/8	5	3½	1 5/8	3 5/8	3½	1 5/8	3½	1⅞	5 7/8
1½	3¾	1⅞	5¼	3¾	1⅞	4¼	3¾	1¾	3¾	2	6⅛
2	4¼	2 3/8	8	4¼	2¼	6½	4¼	2¼	4¼	2 3/8	7⅞

Size Inches	Nos. 284 and 289				No. 414			No. 415	
	A	B	C	D	A	B	C	A	B
½	2¼	¾	4	1⅛	2¼	1⅛	4¼	4½	4¼
¾	2¾	1	4½	1¼	2¾	1 5/16	4½	5½	4½
1	3	1 3/16	5	1 5/8	3	1 3/16	5	6	5
1¼	3½	1½	5½	1¾	3½	1⅜	5½	7	5½
1½	3¾	1⅝	6⅛	1⅞	3¾	1¾	6½	7½	6½
2	4¼	2	7½	2⅜	4¼	1⅞	8	8½	8

All dimensions are in inches.

Approved Milwaukee Bronze Globe and Angle Valves

Heavy and Special Pattern J. D. Type Globe and Angle Valves



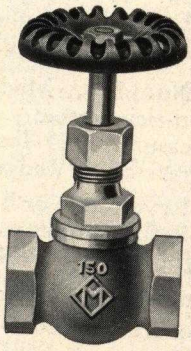
150 lbs. Working Pressure
No. 507—Globe
No. 508—Angle

Heavy pattern valves guaranteed for 150 lbs. working pressure and are tested at 350 lbs. pressure. Medium pattern valves for 100 lbs. working pressure and tested at 300 lbs. pressure. These valves are made of best grade steam metal. The seats are ball joint and swivel type and each valve seat is ground in. The heavy pattern can be supplied with gland follower in the stuffing box and when so furnished carry underwriters' approval for hazardous liquid service. These valves can be used for practically any service where a high grade, dependable valve is required.



125 lbs. Working Pressure
No. 502—Angle
No. 501—Globe

Brass Disc Globe and Angle Valves For Steam, Water, Gas, Oil or Air



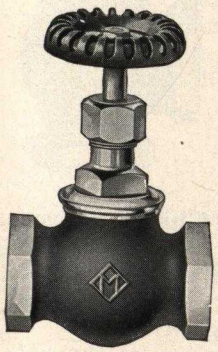
150 lbs. Working Pressure
No. 551—Globe
No. 561—Angle

These valves are made of the highest grade steam metal and furnished with gland follower in stuffing box. All trimmings are highly polished. The ventilated, non-heating handwheel is enameled green. The renewable discs are of our own steam composition. When specified discs for oil, water or air service can be furnished for heavy pattern valves and discs for water and air service for special pattern valves. All heavy pattern valves for 150 lbs. steam working pressure and tested at 350 lbs. pressure. All special pattern valves for 125 lbs. steam working pressure and tested at 300 lbs. pressure.



100 lbs. Working Pressure
No. 564—Angle
No. 554—Globe

Fibre and Leather Disc Globe and Angle Valves



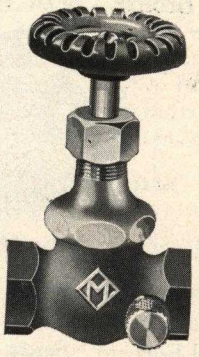
125 lbs. Working Pressure
No. 520—Globe
No. 521—Angle

These valves are constructed throughout similar to brass disc valves, employing fibre or leather discs instead of brass. For 125 lbs. working pressure.

Underwriters Approved Globe and Angle Valves

These are specially constructed brass disc valves listed and approved by the Underwriters' laboratories for hazardous liquid service. For 125 lbs. working pressure.

Compression Stops and Compression Stops and Wastes



125 lbs. Working Pressure
With Stuffing Box
No. 671—Stop and Waste
No. 681—Stop

These valves are regular steam valve construction with substantial bonnets and stuffing boxes. The discs are encased and an exclusive Milwaukee feature is the forming of an upper seat when the valve is open, eliminating pressure on the stuffing box and permitting repacking when the valve is wide open. For 125 lbs. working pressure.

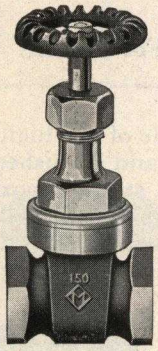
Without Stuffing Box
No. 680—Compression Stop
No. 670—Compression Stop and Waste

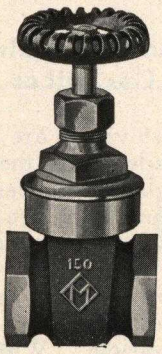
List Prices (All Valves—screwed ends)

No. Globe	No. Angle	Description	Working Pressure Pounds	⅛ in.	¼ in.	⅜ in.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.	2½ in.	3 in.
507	508	Heavy Pattern, J. D. Valves	150	1.10	1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.75	15.75	.....
501	502	Special Pattern, J. D. Valves	125	1.10	1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.75	15.75	.....
551	561	Heavy Pattern Brass Disc Valves	150	.72	.72	.77	1.00	1.26	1.80	2.52	3.50	5.30	10.00	14.40
551G	561G	Heavy Pattern Brass Disc Valve with Gland	150	.72	.72	.77	1.00	1.26	1.80	2.52	3.50	5.30	10.00	14.40
554	564	Medium Pattern Brass Disc Valves	100	.72	.72	.77	1.00	1.26	1.80	2.52	3.50	5.30	10.00	14.40
520	521	Fibre Disc Valves	125	.72	.72	.77	1.00	1.26	1.80	2.52	3.50	5.30	10.00	14.40
522	523	Leather Disc Valves	125	.72	.72	.77	1.00	1.26	1.80	2.52	3.50	5.30	.....	.....
527GU	527AU	Underwriters Approved Valve	125	.72	.72	.77	1.00	1.26	1.80	2.52	3.50	5.30	.....	.....
671	.....	Compression Stop and Waste with stuffing box	125	.72	.72	.77	1.00	1.26	1.80	2.52	3.50	5.30	.....	.....
681	.....	Compression Stop with stuffing box	125	.....	.....	.....	1.40	1.70	4.20	.....	.....	.....	.....	.....
680	.....	Compression Stop without stuffing box	125	.....	.....	.....	1.40	1.70	4.20	.....	.....	.....	.....	.....
670	.....	Compression Stop and Waste without stuffing box	125	.....	.....	.....	1.40	1.70	.....	.....	.....	.....	.....	.....
		Keys for Lock Shield Valves	.....	.10	.10	.10	.10	.15	.15	.15	.20	.20	.25	.35

Note: All above valves can be supplied in lock shield pattern. When ordering supplement figure by letter "LS." All valves can be furnished with English or Whitworth Thread upon being so specified. Compression Stops and Stop and Wastes furnished with brass pipe fine thread upon specification.

Approved Milwaukee Bronze Gate Valves—for Steam, Water, Gas, Oil or Air


No. 400

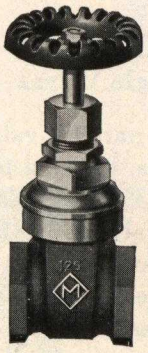

No. 401

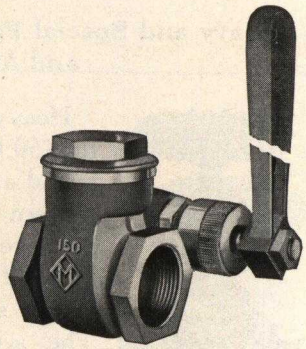
No. 400. Heavy Pattern rising stem gate, without gland follower. 150 lbs. pressure.

Heavy pattern, non-rising stem. 150 lbs. pressure. **No. 401,** without gland follower. **No. 401G,** with gland follower.

No. 101, Medium pattern, non-rising stem. 100 lbs. steam pressure. 125 lbs. water pressure. Solid wedge pattern.

Lever Gate or Throttle Valve. 150 lbs. pressure. **No. 901R,** right hand. **No. 901L,** left hand.


No. 101


No. 901

Milwaukee Brass Gate Valves are made in double wedge pattern. Easy and positive closure is accomplished by the ball and socket self aligning feature incorporated in the disc assembly construction. When open, have full free area way. Every valve is made of the highest grade steam metal. The Heavy Pattern Gate Valves when supplied with gland follower in stuffing box meet underwriters' requirements for hazardous liquid service.

All valves are furnished with ventilated iron wheels, enameled green. Lever Gate or Throttle Valves carry Underwriters' approval and listing for hazardous liquid service. Have gland followers in stuffing box, Tobin bronze stems and levers, and forged discs. The levers are malleable iron enameled black.

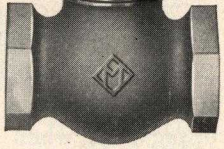
List Prices—All Valves Screwed Ends

Fig. No.	Description	¼ in.	⅜ in.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.	2½ in.
400	Heavy Pattern Gate—Rising Stem—No Gland	1.45	1.45	1.65	2.05	2.80	3.70	5.00	7.30	13.00
401	Heavy Pattern Gate—Non Rising Stem—No Gland	1.45	1.45	1.65	2.05	2.80	3.70	5.00	7.30	13.00
401G	Heavy Pattern Gate—Non Rising Stem—with Gland	1.45	1.45	1.65	2.05	2.80	3.70	5.00	7.30	13.00
101	Medium Pattern Gate—Non Rising Stem	.....	.....	1.65	2.05	2.80	3.70	5.00	7.30	.....
See Note	Lock and Shield Gate Valves	1.45	1.45	1.65	2.05	2.80	3.70	5.00	7.30	13.00
901-R&L	Lever Gate or Throttle Valve	.....	3.50	3.50	4.00	4.80	6.20	.....	.....	.....

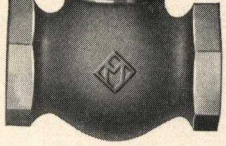
Note: All Gate Valves can be furnished in lock shield pattern. When ordering supplement figure number by letters LS. Whitworth or English thread furnished upon specification. Special handles supplied on order.

Approved Milwaukee Bronze Check Valves—for Steam, Water, Gas or Oil


No. 548


No. 505


No. 509


No. 541


No. 547

Brass Disc Horizontal, Vertical and Angle Check Valves are made of the best grade steam metal. The checks are double wing guided, top and bottom. Seats are ground-in ball type and are practically self-cleaning. Horizontal Check Valves, ½-inch and smaller, can be furnished with ball checks.

Composition Disc Horizontal Check Valves. The checks are double wing guided, top and bottom. Heavy pattern checks supplied with interchangeable Jenkins type discs. Medium pattern checks equipped with renewable discs of our own composition.

Horizontal Swing Check Valves are of the balanced check type. Angle of seat is nearly vertical as is possible and insures positive closing by gravity.

Heavy Pattern, 150 Lbs. Working Pressure

No. 541, Brass Disc Horizontal Check Valve.
No. 548, Brass Disc; **No. 549L.** Leather Disc; **No. 549R,** Rubber Disc; Vertical Check Valves.
No. 547, Brass Disc Angle Check Valve.
No. 545, Brass Disc Horizontal Check with Dripcock.
No. 509, Brass Disc Horizontal Swing Check Valve.
No. 510, Leather Disc Horizontal Swing Check Valve.
No. 511, Rubber Disc Horizontal Swing Check Valve.
No. 505, Composition Disc Horizontal Check Valve.
No. 506, Composition Disc Horizontal Check Valve with Dripcock.

Medium Pattern, 100-125 lbs. Working Pressure

No. 544, Brass Disc Horizontal Check Valve.
No. 504, Brass Disc Horizontal Check Valve with Dripcock.

Special Pattern, 125 lbs. Working Pressure

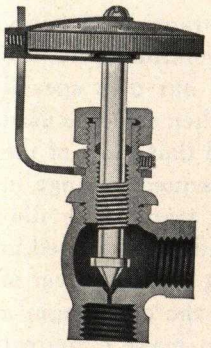
No. 503, Composition Disc Horizontal Check Valve.
No. 509G, Gasoline Swing Check Valve.

List Prices

No.	Description	⅛ in.	¼ in.	⅜ in.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.	2½ in.	3 in.
541, 544	Horizontal Check, Br. Disc	.65	.65	.70	.90	1.15	1.60	2.25	3.15	4.75	9.00	.....
548, 549L, 549R	Vertical Check, Br. Disc	.72	.72	.77	1.00	1.26	1.80	2.52	3.50	5.30	.....	.....
503, 505	Horizontal Check, Comp. Disc	.....	1.10	1.20	1.30	1.90	2.60	3.60	5.00	7.50	13.50	.....
509	Swing Check	.....	1.80	1.80	2.00	2.25	2.80	3.65	4.75	6.75	15.00	24.00
510, 511	Swing Check	.....	2.00	2.00	2.25	2.50	3.15	4.05	5.25	7.50	16.50	26.25
504, 506	Check with Drip, Comp. Disc	.....	.....	.....	2.55	3.30	4.15	5.40	7.25	10.25	.....	.....
545	Check with Drip, Br. Disc	.....	.....	.....	2.15	2.55	3.15	4.05	5.40	.....	.....	.....
547	Angle Check	.....	.72	.77	1.00	1.26	1.80	2.52	3.50	5.30	10.00	.....

Note: All Valves can be furnished with Whitworth or English Thread upon specification. Be sure to specify class of service on Check Valves, if other than steam.

Approved Milwaukee Bronze Needle Point Valves



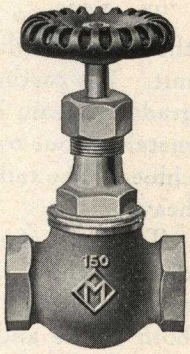
No. 602S
Angle Indicator
Needle Valve

Indicator Needle Valves

These Valves have brass handwheel with graduated numerals on top face and milled or ratchet edge against which the brass spring indicator pointer operates when the handwheel is turned. The indicator is factory set at zero when the valve is closed. Adjustable feature with adjustable lock nut takes care of wear. Valve can always be open to any desired flow, which will be indicated by indicating point. Where desired, the stop can be adjusted and set so that when the handwheel is turned the indicator when coming in contact with stop will prevent handwheel from turning beyond this point.

Standard Needle Point Valves

For use in regular oil service and to meet requirements of oil burning apparatus. Seats employ a long taper and valve stem has a fine thread affording very close adjustment. Can be furnished with or without gland follower. Can also be supplied with brass wheels instead of the standard ventilated iron wheels.



No. 601
Standard Globe
Needle Valve

List Prices

No. Stop	With Stop	Description / Size of Feed Opening	⅛ in. ⅛ in.	¼ in. ⅛ in.	⅜ in. ⅛ in.	½ in. ⅜ in.	¾ in. ¼ in.	1 in. ¼ in.
601-G	601-S	Indicator Needle Valve, Globe, Female Openings	1.40	1.40	1.50	2.00	.....	.....
602-G	602-S	Indicator Needle Valve, Angle, Female Openings	1.40	1.40	1.50	2.00	.....	.....
603-G	603-S	Indicator Needle Valve, Angle, Female Union	2.00	2.00	2.20	3.00	.....	.....
604-G	604-S	Indicator Needle Valve, Globe, Female Union	2.00	2.00	2.20	3.00	.....	.....
601		Standard Needle Valve, Globe, Female Openings	1.20	1.40	1.50	2.00	2.50	3.00
602		Standard Needle Valve, Angle, Female Openings	1.20	1.40	1.50	2.00	2.50	3.00
603		Standard Needle Valve, Angle, Female Union	2.00	2.00	2.20	3.00	3.50	4.50
604		Standard Needle Valve, Globe, Female Union	2.00	2.00	2.20	3.00	3.50	4.50

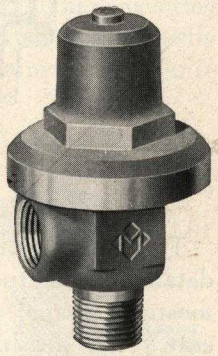
Note: Valve furnished with feed openings as specified above unless ordered otherwise. Standard needle valve can be furnished with gland follower upon specification. Male unions instead of female can be supplied when so ordered.

Milwaukee Diaphragm Relief Valves

Constructed in accordance with A.S.M.E. standards and are especially adapted for relieving excess pressure. Suitable for use on closed hot water heating systems, storage heaters, range boilers, and domestic water supply systems. Valves are equipped with monel metal and phosphor bronze diaphragms and combination hot and cold water renewable seat discs. Seats are self-cleaning. Relief Valves are furnished in two types, Fig. No. 620 Valve is factory set and sealed at 30 lbs., Fig. No. 621 Valve is adjustable to any pressure from 25 lbs. to 150 lbs.

Fig. No. 620. List price, $7.00.

Fig. No. 621, List price, $7.00



No. 620

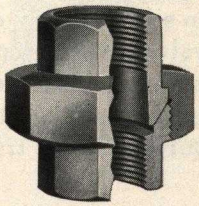
Milwaukee Standard Brass Unions

For Steam, Water, Gas, Air or Oil

These are high quality heavy red metal ground joint unions. Are regularly stocked with iron pipe threads, but on special order can be furnished with brass pipe or fine threads or with one end iron pipe and the other fine thread. For 175 lbs. water pressure and 125 lbs. steam pressure.

List Prices

No.	Size—Iron Pipe / Size—Fine Thread	⅛	¼	⅜	½ ¾	¾ 1	1 1¼	1¼ 1½	1½ 2	2 2½	2½	3 .....
701	Rough—Round Pattern	0.40	0.50	0.65	0.85	1.15	1.60	2.25	2.70	4.00	7.50	11.50
702	Semi-finished—Round Pattern	.45	.55	.75	.95	1.30	1.75	2.50	3.00	4.50	8.25	12.75
703	Finished—Round Pattern	.50	.60	.85	1.05	1.40	1.90	2.75	3.25	5.00	9.00	14.00
704	Nickel plated—Round Pattern	.60	.72	1.02	1.26	1.68	2.28	3.30	3.90	6.00	10.80	16.80
705	Rough—Hexagon Pattern	.40	.50	.65	.85	1.15	1.60	2.25	2.70	4.00	7.50	11.50



No. 705

Milvaco Automatic Air Valves

Perfectly designed to properly vent low pressure heating systems. Furnished in various styles and patterns, and with vacuum feature, they cover completely all requirements.

Are constructed of highest grade materials, rigidly tested and inspected, and are highly plated and polished. **The Base** is a one-piece brass forging providing great strength. **The Float** is scientifically designed to close perfectly against water and is thermostatically controlled to positively expand and close against steam. The float pin is made of nickel silver, non-corrosive and non-sticking. **The Port** is unusually large, providing for rapid venting. **The Shell** is made of drawn brass highly polished and plated.



Fig. No. 1—⅛-in.
Syphon Automatic
Air Valve

List Prices

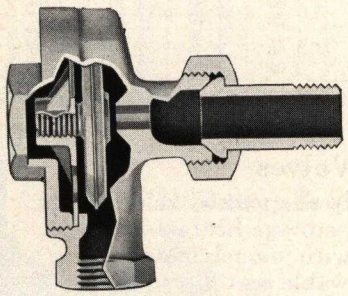
Fig. No.	Description	List Price
1	⅛-inch Angle	$1.50
2	⅛-inch Angle Vacuum	2.50
3	⅛-inch Straight Shank	2.00
4	⅛-inch Straight Shank Vacuum	3.50
5	¼-inch Straight Shank	2.00
6	¼-inch Straight Shank Vacuum	3.50

Milvaco Thermostatic Traps

The Milvaco Trap is composed of five major parts, the body, the diaphragm, the cover, the tail piece and nut. The castings of the Milvaco Trap are of the best grade of steam bronze, melted from virgin (not scrap) metals in our own foundry, and interchangeably machined. The tail piece and nut are made exceptionally heavy.

The heart of a thermostatic trap is the diaphragm, or disc, which, in the Milvaco Trap, is formed of our own special bronze. The diaphragm is so thoroughly tested both before and after filling that diaphragm troubles are almost unknown in Milvaco Traps. The valve is secured directly to the diaphragm in order to prevent any "singing" by the trap. To protect the diaphragm against the chemical action of boiler compounds or "hard water" conditions, the diaphragm is heavily nickel-plated. After filling with the volatile liquid, the diaphragm is hermetically sealed by our own special cold method, instead of by solder. When solder is used for sealing there is always a likelihood that some of the liquid will be volatilized with a consequent change in the operating characteristics of the trap. The diaphragm of the Milvaco Trap is secured and adjusted in a "cage," or plate, instead of being set into the cover of the trap. This arrangement affords the diaphragm a movement which allows the valve to make a perfect seat. In addition, the diaphragm may be removed from the trap, while the system is being cleaned, without disturbing its factory adjustment, or requiring extra trap covers.

Type V Thermostatic Trap



Type V
Vertical Seat
Outboard Diaphragm

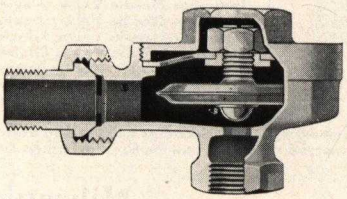
The illustration is a sectional view showing the details of construction of the Milvaco Type V Thermostatic Traps, which have a vertical, self-cleaning seat. The diaphragm closes against the steam, and is fitted with a flat valve which is accurately ground to seat perfectly and cannot stick. The use of the flat valve gives a rapid transfer to the liquid in the diaphragm of the heat conditions in the radiator, which is not possible with the cone or ball type of valve, in an outboard type trap.

Sizes, Capacities and List Prices

Trap Type	Fig. No.	Description	Pipe Conn. In.	Capacity Sq. Ft. Rad.	List Price
"V"	01	Angle Patt.....	½	100	4.00
"V"	02	Angle Patt.....	½	200	5.00
"V"	05	Angle Patt.....	¾	500	8.00

Street Ells with Coupling Nut to convert Angle Pattern Trap to R.H., L.H., or S. W.. $0.60.

Type H Thermostatic Trap



Type H
Horizontal Seat
Inboard Diaphragm

The sectional view gives the details of construction of the Milvaco Type H Thermostatic Trap. This trap has a horizontal seat. The trap body has a large outlet free from any raised seat so that it is impossible for any sediment to collect in the trap. The valve on the diaphragm is of the cone type and of monel metal; the use of this hard metal against the somewhat softer steam bronze insures a perfect seat. One salient feature of the Type H Trap is the lateral movement of the diaphragm in the "cage" or disc; this allows the cone valve to center itself in the seat.

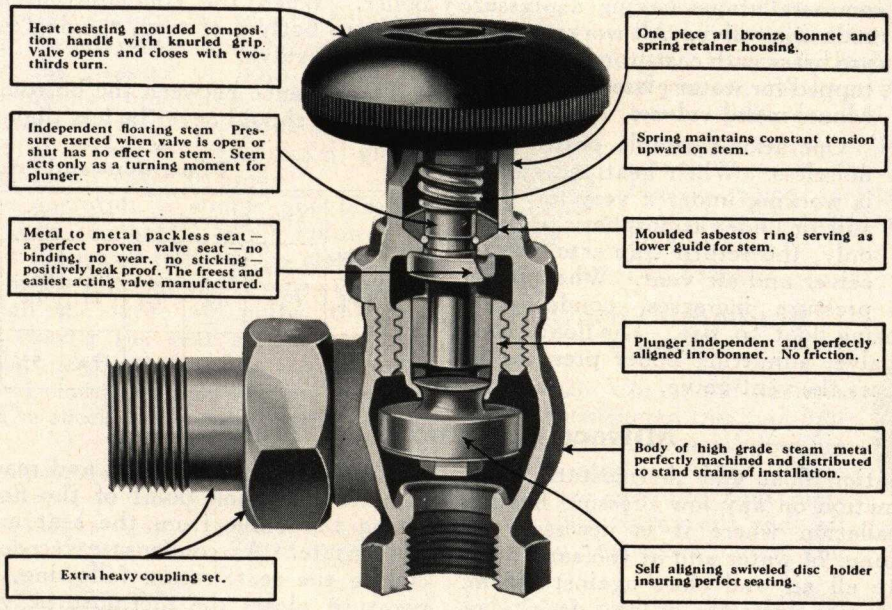
This type of trap has the diaphragm on the radiator side of the return line, and is preferable to use where a high vacuum is likely to be carried in the return line.

Sizes, Capacities and List Prices

Trap Type	Fig. No.	Description	Pipe Conn. In.	Capacity Sq. Ft. Rad.	List Price
"H"	100	Angle Patt.....	½	100	4.00
"H"	100-R	Right Hand	½	100	4.00
"H"	100-L	Left Hand.....	½	100	4.00
"H"	100-SW	Straight Way	½	100	4.00
"H"	350	Angle Patt.....	½	350	5.00
"H"	350-R	Right Hand.....	½	350	5.00
"H"	350-L	Left Hand.....	½	350	5.00
"H"	350-SW	Straight Way.....	½	350	5.00
"H"	750	Angle Patt.....	¾	750	8.00

Bulletins Containing Complete Information and Roughing-in Dimensions will be sent upon request.

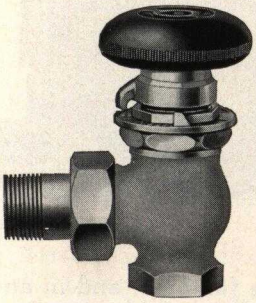
Milvaco-Dole Packless Radiator Valves



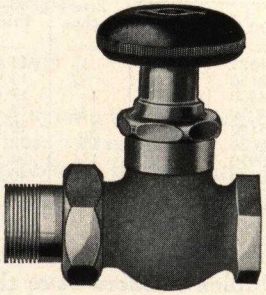
Milvaco-Dole Packless Radiator Valves are subjected to the following factory tests before shipment:

Hydraulic test at 250 lbs. pressure.
Steam test at 80 lbs. pressure.
Air under cold water at 50 lbs. pressure.
Vacuum under cold water at 18 inches.

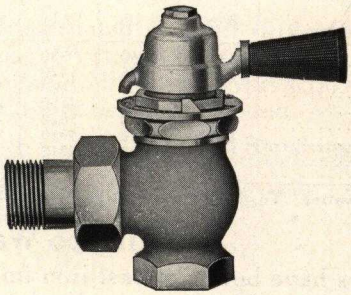
In addition to these tests each component part is given a 50-lb. air test before assembly. These exacting tests and rigid inspection enable us to unqualifiedly guarantee Milvaco-Dole Valves against any manufacturing defects.



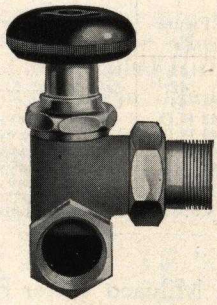
No. 210



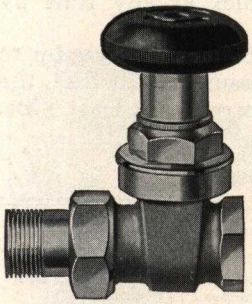
No. 105
No. 106—Double End Union



No. 209



No. 103—R.H. Corner Valve
No. 104—L.H. Corner Valve



No. 107
No. 108—Double End Union

Price Lists

Fig. No.	Description	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
215	Quick Opening Angle Valve	3.70	4.30	5.10	6.40	8.40	13.60
209	Lever Handle Graduate Valve	3.70	4.30	5.10	6.40	8.40	13.60
210	Wheel Handle Graduate Valve	3.70	4.30	5.10	6.40	8.40	13.60
105	Radiator Globe Valve	3.70	4.30	5.10	6.40	8.40	13.60
105G	Graduated Radiator Globe Valve	3.70	4.30	5.10	6.40	8.40	13.60
106	Graduated Radiator Globe Valve—double end union	3.70	4.30	5.10	6.40	8.40	13.60
103	Right Hand Corner Valve	4.10	4.75	5.60	7.05	9.25	15.00
103G	Graduated Right Hand Corner	4.10	4.75	5.60	7.05	9.25	15.00
104	Left Hand Corner Valve	4.10	4.75	5.60	7.05	9.25	15.00
104G	Graduated Left Hand Corner	4.10	4.75	5.60	7.05	9.25	15.00
107	Radiator Gate Valve	3.65	4.25	5.20	6.60	9.00	13.80
108	Radiator Gate Valve—double end union	3.65	4.25	5.20	6.60	9.00	13.80

When valves are required for hot water service, circulating holes will be drilled, unless otherwise ordered.
All of the above type valves can be furnished in Lock and Shield Pattern.

Bulletins Containing Complete Information and Roughing-in Dimensions will be sent upon request.

Milvaco Special Boiler Return Trap

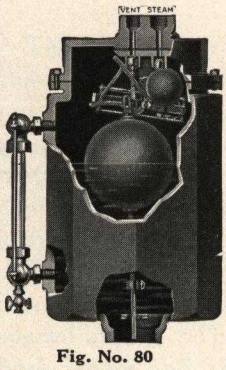


Fig. No. 80

Operate perfectly on any pressure up to 15 lbs. and can be used on installations having a pressure reducing valve. All working parts are brass with cast-iron body, body tapped for water glass connections. Monel metal valves.

Operation is simple, positive and noiseless. When heating system is working under a very low pressure or under atmospheric pressure only, the return trap acts as a receiver and air vent. When boiler pressure increases, condensation rises in traps, causing float to rise. The float rising opens the steam valve, admitting boiler pressure to top of trap, and closes the vent valve. Thus, pressure in boiler and trap is equalized and the water of condensation flows by gravity back to the boiler. When the condensation is discharged float drops to bottom of trap, opening vent valve and closing steam valve.

The distance between the bottom of trap and boiler water line should never be less than 8 inches.

Dimensions and Prices

Fig. No.	Capacity Sq. Ft. Rad.	Pipe Connections			Overall Dim.		Shipping Weight Lbs.	List Price	List Price Gauge Glass Set
		Condensation Pipe In.	Steam In.	Vent In.	Height In.	Diam. In.			
80	4000	2	¾	½	17¾	9¾	75	$100.00	2.50

Milvaco Drip and Blast Traps

Milvaco combination float and thermostatic traps are designed to function on any low pressure heating apparatus or installation where it is necessary to handle a large volume of water and at the same time positively eliminate all air and close against steam. These traps will operate perfectly on any gravity or vacuum steam installation providing the gauge pressure does not exceed 15 lbs. May be used for any of the following purposes—dripping low pressure steam mains and risers, blast coils, blast heaters, unit heaters, vento radiation, condensers, evaporators, dry kilns and industrial heaters.

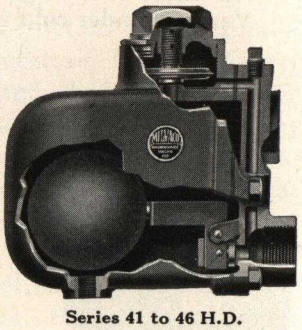
The air is rapidly eliminated through the 5/16-inch air vent and by-passed into the return. As condensation flows into the traps and reaches a level higher than the flotation point of the float, the float rises, lifting the valve from the seat and eliminating the condensate. As condensate recedes, the float drops, closing the seat; steam following, by means of temperature, closes the thermostatic vent and the water seal in the trap prevents the passage of steam.

All working parts are attached to the cover of the trap, thus avoiding the removal of the trap from the line for cleaning or repairing. The bodies are made of iron, the working parts of phosphor bronze and the copper floats are seamless and factory tested at 150 lbs. pressure. The seat and monel disc in the valve arrangement are renewable.

Sizes—Capacities—List Prices

Figure No.	Description Pipe Connection	Capacities, Pounds Water Per Hour						Size Inches	List Price
		8 oz.	1 Lb.	3 Lbs.	5 Lbs.	10 Lbs.	15 Lbs.		
41	½-inch	200	340	980	1275	1875	2450	½	$13.00
42	¾-inch	220	396	1120	1490	2150	2660	¾	13.00
43	1-inch	900	1600	2660	3425	4800	6200	1	17.00
42 H.D.	¾-inch Heavy Duty	960	1680	2750	3500	4950	6300	¾	17.00
43 H.D.	1 -inch Heavy Duty	1200	2000	3820	4400	5340	6420	1	30.00
44 H.D.	1¼-inch Heavy Duty	1355	2180	3950	4550	5620	6580	1¼	32.00
45 H.D.	1½-inch Heavy Duty	1440	2800	4810	5600	6950	7240	1½	34.00
46 H.D.	2 -inch Heavy Duty	2020	4100	7380	8300	10100	12200	2	40.00

Capacities above listed are conservative. To obtain equivalent in sq. ft. of direct radiation multiply pounds of water by 4.


Series 41 to 46 H.D.

Milvaco Water Feeders

Milvaco Water Feeders have bodies of cast iron finished in battleship gray. All working parts are brass or monel metal. Floats are of copper and are tested at 200 pounds pressure.

Simplex Feeders provide a positive means of maintaining a constant water level in boilers, receiving tanks, steam generators, accumulators, evaporators, feed water storage heaters or any apparatus requiring control of water line.

Duplex Feeders have the same function, and in addition, by means of the duplex feature or overflow chamber, discharge any surplus water to the sewer. Both feeders are of the same construction and the simplex feeder can be made duplex at any time by adding the overflow chamber.

These Feeders will operate on boiler pressures up to 65 lbs. and maximum water pressure of 70 lbs., the operation dependent on a water pressure at least 5 lbs. greater than the steam pressure.

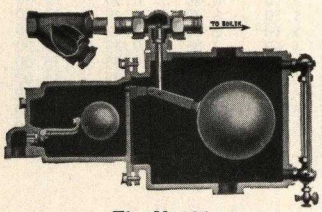


Fig. No. 85

List Prices—Pipe Connections—Weights—Dimensions

Figure Number	Pipe Connections				Overall Dimensions		Approx. Shipping Inches Pounds	List Price
	Water Supply Inch	Discharge To Boiler Inch	Equalizing Pipes Inch	Overflow Inch	Height Inches	Length Inches		
85 Duplex	¾	¾	1	¾	9½	16	60	60.00
86 Simplex	¾	¾	1	¾	9½	12⅜	55	50.00

Bulletins Containing Complete Information and Roughing-in Dimensions will be sent upon request.

Milvaco Air Eliminator or Float Vent



Fig. No. 12

Milvaco Air Eliminators or Float Vents can be used on any low pressure system or apparatus where the rapid elimination of air is advisable and necessary and where the passage of both steam and water must be prevented. The body and all parts are heavy and made of the best grade of steam bronze, nickel plated. Monel metal valve is used.

The operation is simple and positive. The cycle in general is air followed by water; the water followed by steam. Air is rapidly eliminated by free passage through the large air ports; the float rises, closing the seat at the top, preventing passage of water; the thermal element expands and closes the seat and prevents the escape of steam. The check valve prevents the return of air.

Sizes, Capacities and List Prices

Fig. No.	Pipe Size	Approximate Venting Capacity	Maximum Pressure Lbs.	Height Overall Inches	List Price
9	¼-in. I.P.Male	1000 sq. ft. Direct Radiation	15	5½	6.50
10	⅜-in. I.P.Male	2000 sq. ft. Direct Radiation	15	5½	6.50
11	½-in. I.P.Male	3000 sq. ft. Direct Radiation	15	6½	8.00
12	¾-in. I.P.Male	4500 sq. ft. Direct Radiation	15	6½	8.00

Milvaco Damper Regulator

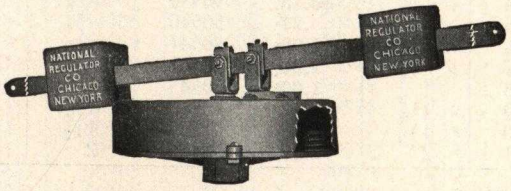


Fig. No. D-10

For use on all vapor heating systems. It is sensitive, positive and reliable in operation. Pressure can be controlled in ounces from atmospheric to five pounds. The Diaphragm is of liberal size and constructed of special bronze metal.

Lever, two weights, two pulleys, S hooks and chain are included in price. Detail installation sheet shipped with each Milvaco Damper Regulator.

List Price.....$29.00

Milvaco Quick Vents

For use at high points on any installation where a large volume of air must be rapidly vented. Vents perfectly at low or high pressures. Check valve prevents return of air into the system. Unusually large port for the escape of the air. A large substantial vent for heavy duty service. Can be used on pressures up to 50 pounds. Closes instantly against the pressure of steam. Not to be used for closing against water.

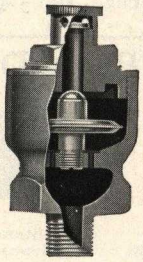
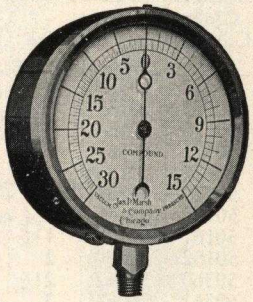


Fig No. 32

Made in ½-inch size only. Height overall 4 inches.

List Price.....$4.00

Milvaco Compound Gauge



No. 38

Milvaco Compound Gauges are so constructed that one half of the Dial indicates pressure and the other vacuum. These gauges are carefully constructed, expertly balanced, and tell correctly the condition of the plant.

List Price, each.....$10.00

Milvaco Sediment Strainers



Fig. No. 47—Strainer

Used to prevent dirt, scale, and all foreign substances from lodging in steam traps, regulating valves and other appliances having mechanical movement.

For use on steam, water, gas and oil lines.

Milvaco Strainers are so constructed that all dirt and sediment can be blown out. A strainer of proper size should be installed at the inlet of all types of Milvaco Drip and Ball Float Traps. Cannot become airbound.

Prices and Roughing-in Dimensions

Figure Number	Pipe Connections Inches	Length Overall Inches	List Price
47	½	3¾	4.50
47—A	¾	4¼	5.00
47—B	1	4¾	6.80
47—C	1¼	5½	8.60
47—D	1½	6¼	10.25
47—E	2	6¾	12.00

Milvaco Air Line Valve

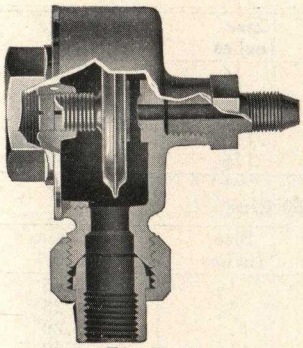


Fig. No. 37

Primarily used on air line vacuum systems of heating. Adaptable to vapor, vacuum or low pressure systems, fan coils, vento or any low pressure duty where thermostatic type vent is required at drip points. The Thermal Member is made of metal by our own process and designed to eliminate any possibility of failure.

Opens to discharge air and water but closes tight against steam. The body is exceptionally heavy and is constructed of the highest grade of steam bronze, accurately machined. Furnished nickel plated unless ordered otherwise.

Prices and Roughing-in Dimensions

Figure Number	Pipe Connections Inches	Center Line Outlet End of Spud Inches	Face of Outlet to Center of Spud Inches	List Price
37	⅛x¼	1¾	2¼	4.00

OHIO BRASS COMPANY

Mansfield, Ohio, U. S. A.

New York City — Philadelphia, Pa. — Chicago, Ill. — Wm. P. Horn Co., Los Angeles—San Francisco—Seattle

Brass Disc Valves

1535V



Standard Globe



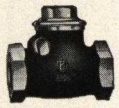
Standard Angle



Standard Horizontal Check



Standard Vertical Check



Standard Swing Check

No. 1 Line—125 Pounds

Globe Catalog No.	Angle Catalog No.	Size Inches	List Each
50332	50333	⅛	$ 0.72
50175	50183	¼	.72
50176	50184	⅜	.77
50177	50185	½	1.00
50178	50186	¾	1.26
50179	50187	1	1.80
50180	50188	1¼	2.52
50181	50189	1½	3.50
50182	50190	2	5.30
50360	50362	2½	10.00
50361	50363	3	14.40

Horizontal Check

Catalog No.	Size Inches	List Each
50334	⅛	$ 0.65
50191	¼	.65
50192	⅜	.70
50193	½	.90
50194	¾	1.15
50195	1	1.60
50196	1¼	2.25
50197	1½	3.15
50198	2	4.75
50364	2½	9.00
50365	3	13.00

Vertical Check

Catalog No.	Sizes Inches	List Each
50352	¼	$ 0.72
50353	⅜	.77
50354	½	1.00
50355	¾	1.26
50356	1	1.80
50357	1¼	2.52
50358	1½	3.50
50359	2	5.30
50378	2½	10.00
50379	3	14.40

Swing Check

Catalog No.	Size Inches	List Each
50336	¼	$ 1.80
50337	⅜	1.80
50338	½	2.00
50339	¾	2.25
50340	1	2.80
50341	1¼	3.65
50342	1½	4.75
50343	2	6.75
50635	2½	15.00
50636	3	24.00

No. 2 Line—Competition

Globe Catalog No.	Angle Catalog No.	Size Inches	List Each
50326	50327	⅛	$ 0.72
50241	50249	¼	.72
50242	50250	⅜	.77
50243	50251	½	1.00
50244	50252	¾	1.26
50245	50253	1	1.80
50246	50254	1¼	2.52
50247	50255	1½	3.50
50248	50256	2	5.30
50320	50322	2½	10.00
50321	50323	3	14.40

Horizontal Check

Catalog No.	Size Inches	List Each
50328	⅛	$0.65
50257	¼	.65
50258	⅜	.70
50259	½	.90
50260	¾	1.15
50261	1	1.60
50262	1¼	2.25
50263	1½	3.15
50264	2	4.75
50324	2½	9.00
50325	3	13.00

Vertical Check

Catalog No.	Size Inches	List Each
50344	¼	$0.72
50345	⅜	.77
50346	½	1.00
50347	¾	1.26
50348	1	1.80
50349	1¼	2.52
50350	1½	3.50
50351	2	5.30

Swing Check

Catalog No.	Size Inches	List Each
50539	¼	$1.80
50540	⅜	1.80
50541	½	2.00
50542	¾	2.25
50543	1	2.80
50544	1¼	3.65
50545	1½	4.75
50546	2	6.75

Radiator Valves

Note—All furnished complete with unions. Black composition hand-wheel is regularly supplied on Nos. 30, 35, 40, 50 Lines. No. 36 Line has black lever handle.



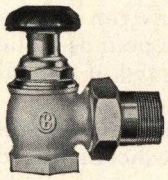
Steam Radiator No. 30 Line



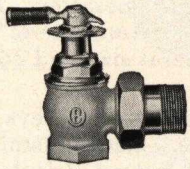
Hot Water Radiator No. 40 Line



Union Elbow No. 45 Line



Packless Steam Radiator—No. 35 Line Wheel Handle



Packless Steam Radiator—No. 36 Line Lever Handle (Graduating)



Radiator Gate with Flexitite Disc No. 50 Line

Steam Radiator—No. 30 Line

Angle Catalog No.	Size Inches	List Each	Corner Type Right	Corner Type Left	Size Inches	List Each
50031	½	$3.70				
50032	¾	4.30	50037	50042	¾	$4.75
50033	1	5.10	50038	50043	1	5.60
50034	1¼	6.40	50039	50044	1¼	7.05
50035	1½	8.40	50040	50045	1½	9.25
50036	2	13.60	50041	50046	2	15.00

Hot Water—No. 40 Line

Catalog No.	Size Inches	List Each
50167...	½	$3.25
50168...	¾	3.70
50169...	1	4.50
50170...	1¼	5.75
50171...	1½	7.30
50172...	2	12.00

Union Elbows—No. 45 Line

Catalog No.	Size Inches	List Each
50058...	½	$1.75
50059...	¾	2.00
50060...	1	2.50
50061...	1¼	3.30
50062...	1½	4.25
50063...	2	7.20

No. 35 Line — No. 36 Line

Catalog No. Wheel Handle	Catalog No. Lever Handle	Size Inches	List Each
50637	50642	½	$3.70
50638	50643	¾	4.30
50639	50644	1	5.10
50640	50645	1¼	6.40
50641	50646	1½	8.40

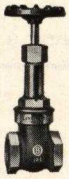
Gate—No. 50 Line

Catalog No.	Size Inches	List Each
50300	½	$3.65
50301	¾	4.25
50302	1	5.20
50303	1¼	6.60
50304	1½	9.00
50305	2	12.80

Gate Valves



No. 20 Line
125-Pound
Standard Flexitite
Disc



No. 21 Line
Same as No. 20 except
with rising stem.
Flexitite Disc



No. 22 Line
150-Pound
Standard
Flexitite Disc



No. 25 Line
100-Pound Light
Standard
Flexitite Disc

Gate valves are intended for use where either a full pressure, unobstructed flow, or a complete shut-off is wanted. If full pressure is unnecessary and a regulated flow is required, a globe or angle type valve is most desirable.

The Flexitite principle assures gate valves that shut off absolutely tight on steam, water, air, gasoline, gas, oil, and vacuum systems. The combination of a slightly flexible disc and a sturdy, one-piece construction insures perfect contact between both sides of the disc and the seats when the valve is closed.

No. 20 Line	No. 21 Line	No. 22 Line	No. 25 Line	Size Inches	List Each
50547	.....	.....	.....	1/8	$1.45
50548	50587	50605	50571	1/4	1.45
50549	50588	50606	50572	3/8	1.45
50550	50589	50607	50573	1/2	1.65
50551	50590	50608	50574	3/4	2.05
50552	50591	50609	50575	1	2.80
50553	50592	50610	50576	1 1/4	3.70
50554	50593	50611	50577	1 1/2	5.00
50555	50594	50612	50578	2	7.30
50556	50595	50613	50579	2 1/2	13.00
50557	50596	50614	50580	3	19.00

New (Compression) Stop and Waste Valves

No. 3 Line (Without Waste)

Catalog No.	Size Inches	List Each
50597	3/8	$0.92
50598	1/2	1.15
50599	3/4	1.46
50600	1	2.00



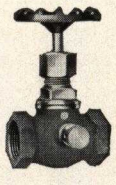
(Compression) Without Waste

No. 3 Line (With Waste)

Catalog No.	Size Inches	List Each
50647	3/8	$1.40
50648	1/2	1.40
50649	3/4	1.71
50650	1	2.00

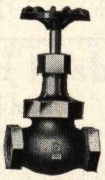
No. 3 Line—Angle Valve
(Not Illustrated)

Catalog No.	Size Inches	List Each
50601	3/8	$0.92
50602	1/2	1.15
50603	3/4	1.46
50604	1	2.00



(Compression) With Waste

Composition Disc Union Bonnet Valves



O-B Disc
Union
Bonnet
Standard
Globe

No. 11 Line—150 Pounds Pressure

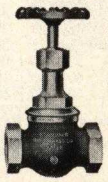
The No. 11 O-B disc Union Bonnet valves are regularly fitted with discs for steam service only. Discs for other services furnished, if ordered.



O-B Disc
Union
Bonnet
Standard
Angle

Globe Cat. No.	Angle Cat. No.	Size Inches	List Each
50615	50625	1/4	$1.10
50616	50626	3/8	1.25
50617	50627	1/2	1.60
50618	50628	3/4	2.20
50619	50629	1	2.80
50620	50630	1 1/4	4.00
50621	50631	1 1/2	5.50
50622	50632	2	8.75
50623	50633	2 1/2	15.75
50624	50634	3	22.00

Composition Disc Valves



O-B Disc
Standard
Globe



O-B Disc
Standard
Angle



O-B Disc
Standard
Horizontal
Check

No. 10 Line—150 Pounds Pressure

No. 10 Line is standard pattern. Nos. 10 and 15 lines fitted with discs suitable for steam service only. Discs for other services furnished if ordered.

Globe				Angle			Horizontal Check		
Catalog No.		Size Inches	List Each	Catalog No.		Size Inches	List Each	Catalog No.	Size Inches	List Each
50419		1/8	$1.10	50430		1/8	$1.10	50441	1/8	$1.10
50420		1/4	1.10	50431		1/4	1.10	50442	1/4	1.10
50421		3/8	1.25	50432		3/8	1.25	50443	3/8	1.20
50422		1/2	1.60	50433		1/2	1.60	50444	1/2	1.30
50423		3/4	2.20	50434		3/4	2.20	50445	3/4	1.90
50424		1	2.80	50435		1	2.80	50446	1	2.60
50425		1 1/4	4.00	50436		1 1/4	4.00	50447	1 1/4	3.60
50426		1 1/2	5.50	50437		1 1/2	5.50	50448	1 1/2	5.00
50427		2	8.75	50438		2	8.75	50449	2	7.50
50428		2 1/2	15.75	50439		2 1/2	15.75	50450	2 1/2	13.50
50429		3	22.00	50440		3	22.00	50451	3	21.00

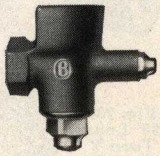
No. 15 Line—125 Pounds Pressure

Globe				Angle			Horizontal Check		
Catalog No.		Size Inches	List Each	Catalog No.		Size Inches	List Each	Catalog No.	Size Inches	List Each
50475		1/4	$1.10	50486		1/4	$1.10	50497	1/4	$1.10
50476		3/8	1.25	50487		3/8	1.25	50498	3/8	1.20
50477		1/2	1.60	50488		1/2	1.60	50499	1/2	1.30
50478		3/4	2.20	50489		3/4	2.20	50500	3/4	1.90
50479		1	2.80	50490		1	2.80	50501	1	2.60
50480		1 1/4	4.00	50491		1 1/4	4.00	50502	1 1/4	3.60
50481		1 1/2	5.50	50492		1 1/2	5.50	50503	1 1/2	5.00
50482		2	8.75	50493		2	8.75	50504	2	7.50
50483		2 1/2	15.75	50494		2 1/2	15.75	50505	2 1/2	13.50
50484		3	22.00	50495		3	22.00	50506	3	21.00

Blow Gun

Catalog No.	Size Inches	List Each
50655	1/8	$1.65
50656	1/4	1.65
50657	3/8	1.90

Tips for various purposes available.



Blow Gun

ACHESON MANUFACTURING CO. RANKIN, PA.

New York Warehouse—197 Lafayette Street, New York

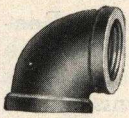


Fig. 101
90° Elbow

Standard Brass Fittings

Air Tested

For Steam Working Pressure Up to 125 Pounds
Rough—For Iron Pipe

Size.....Inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10
Price, Each																	
Elbows, 90-degree	.12	.15	.20	.28	.40	.63	.90	1.20	2.00	3.50	6.00	8.00	10.00	25.00	40.00	80.00	185.00
Elbows, Reducing	....	.19	.25	.35	.50	.80	1.10	1.50	2.50	4.25	7.50	10.00	12.50	30.00	50.00	100.00	215.00
Elbows, 45-degree	.16	.20	.25	.31	.40	.63	.90	1.20	2.00	3.50	6.00	8.00	10.00	25.00	40.00	80.00	185.00
Elbows, Street, 90-degree	.25	.27	.33	.48	.63	.85	1.50	2.00	3.25	6.00	10.00	.....	.....	.....	.....	.....	.....
Elbows, Street, 45-degree	.25	.27	.33	.48	.63	.85	1.50	2.00	3.25	6.00	10.00	.....	.....	.....	.....	.....	.....
Elbows, Side Outlet	....	.45	.60	.85	1.20	1.90	2.75	3.60	6.00	10.50	18.00	.....	.....	.....	.....	.....	.....
Elbows, Drop, Female	....	....	.35	.45	.65	1.05	1.50	2.00	3.40	.....	.....	.....	.....	.....	.....	.....	.....
Tees	.17	.21	.28	.40	.55	.85	1.25	1.70	2.80	5.00	8.50	11.00	14.00	35.00	52.00	110.00	250.00
Tees, Reducing	....	.25	.35	.50	.70	1.05	1.55	2.10	3.50	6.25	10.50	14.00	17.50	44.00	65.00	140.00	300.00
Tees, Drop, Single Ear, Female	....	....	.43	.57	.80	1.25	1.85	2.50	4.20	.....	.....	.....	.....	.....	.....	.....	.....
Tees, Drop, Double Ear, Female	....	....	.58	.74	1.05	1.70	2.45	3.30	5.60	.....	.....	.....	.....	.....	.....	.....	.....
Tees, Side Outlet	....	....	....	1.20	1.65	2.50	3.75	5.00	8.50	.....	.....	.....	.....	.....	.....	.....	.....
Crosses	.25	.30	.40	.55	.80	1.25	1.80	2.40	4.00	7.00	12.00	16.00	20.00	50.00	80.00	160.00	310.00
Crosses, Reducing	....	.38	.50	.70	1.00	1.55	2.25	3.00	5.00	8.75	15.00	20.00	25.00	63.00	100.00	200.00	372.00
Couplings	.10	.13	.17	.25	.37	.55	.80	1.00	1.60	2.50	3.50	5.25	7.00	15.00	23.00	48.00	100.00
Couplings, R. & L.	.13	.17	.22	.30	.45	.70	1.00	1.30	2.00	3.10	4.50	.....	.....	.....	.....	.....	.....
Couplings, Reducing	....	.15	.20	.28	.40	.60	.90	1.10	1.75	2.75	4.00	6.00	8.00	19.00	29.00	60.00	125.00
Bushings, Regular	....	.10	.12	.15	.22	.35	.50	.70	1.00	1.50	2.50	3.75	5.00	12.00	18.00	35.00	100.00
Bushings, Faced	....	.12	.15	.19	.27	.44	.62	.87	1.25	1.85	3.10	4.75	6.25	.....	.....	.....	.....
Plugs, Regular	.08	.10	.12	.15	.20	.30	.45	.60	.95	1.50	2.25	3.75	5.00	8.00	12.00	30.00	50.00
Plugs, Solid	....	....	.18	.22	.30	.45	.80	1.20	1.90	3.00	4.50	7.50	10.00	15.00	23.00	48.00	140.00
Plugs, Countersunk	....	....	....	.22	.30	.45	.65	.90	1.40	.....	.....	.....	.....	.....	.....	.....	.....
Caps	.10	.13	.16	.20	.30	.42	.60	.80	1.25	2.50	3.50	5.50	7.00	15.00	23.00	48.00	140.00
Locknuts	.10	.10	.12	.15	.20	.28	.40	.55	.80	1.75	2.75	4.00	5.00	8.00	12.00	30.00	85.00
Return Bends, Close	.30	.40	.55	.70	1.00	1.25	1.80	2.50	4.25	7.00	10.00	.....	.....	.....	.....	.....	.....
Return Bends, Open	.40	.50	.60	.80	1.10	1.40	2.15	3.00	4.75	8.25	11.00	.....	.....	.....	.....	.....	.....
Wyes	....	....	.60	.75	1.10	1.65	2.50	3.30	5.50	9.50	16.00	21.00	26.00	63.00	100.00	200.00	410.00

Note—Right and Left Elbows and Right and Left Return Bends furnished at an advance of 25 percent over above prices.
Bushings and Reducers, reducing more than two sizes, furnished at an advance of 25 percent over above prices. Furnished in acid-resisting metal or copper, if desired, at a special discount.

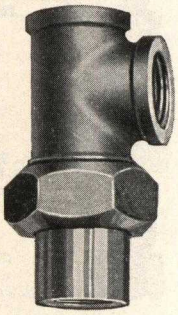


Fig. 220
Female Union
on Run

Fig. 221
Male Union
on Run



Fig. 117—Plug

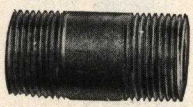


Fig. 171—Brass Nipple



Fig. 114—Bushing

Extra Heavy Brass Steam Fittings

Cast Iron Pattern—Rough, For Iron Pipe **Air Tested** **For Steam Working Pressure Up to 250 Pounds**

Size.....Inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6
Elbows, 90-degree	.33	.45	.65	1.00	1.50	2.25	3.00	4.50	8.00	11.25	16.00	22.00	27.00	35.00	45.00
Elbows, Reducing	.....	.55	.75	1.20	1.80	2.60	3.50	5.25	9.00	13.00	19.00	25.00	30.00	40.00	50.00
Elbows, 45-degree	.45	.55	.75	1.10	1.65	2.50	3.25	4.50	8.00	11.25	16.00	22.00	27.00	35.00	45.00
Elbows, R. & L.	.40	.55	.75	1.20	1.80	2.60	3.50	5.25	9.00	13.00	.....	.....	.....	.....	.....
Tees	.45	.60	.90	1.35	2.00	3.00	4.00	6.00	10.75	15.00	22.00	30.00	36.00	46.00	60.00
Tees, Reducing	.....	.70	1.05	1.55	2.30	3.50	4.50	6.75	12.00	17.00	25.00	35.00	40.00	51.00	66.00
Crosses	.70	.90	1.30	2.00	3.00	4.50	6.00	9.00	16.00	22.50	28.00	37.00	45.00	60.00	75.00
Crosses, Reducing	.....	1.10	1.50	2.40	3.60	5.25	7.00	10.50	18.00	26.00	32.00	42.00	50.00	66.00	82.00
Couplings	.40	.50	.70	1.10	1.65	2.25	3.00	4.50	7.00	10.00	13.00	17.00	21.00	27.00	35.00
Return Bends, Close	.....	.....	1.65	2.50	3.50	5.00	7.00	10.00	16.00	22.00	30.00	40.00	.....	.....	.....
Return Bends, Open	.....	.....	1.80	2.75	4.00	5.50	8.00	11.00	18.00	25.00	35.00	45.00	.....	.....	.....
Wyes	.90	1.10	1.50	2.50	3.50	5.50	7.25	11.00	19.00	27.00	33.00	45.00	55.00	70.00	90.00



Fig. 153—Tee

For reducing couplings, reducing two sizes and less, add 20 percent to straight coupling list. Reducing more than two sizes, add 40 percent. For right and left Return Bends add 20 percent to regular Return Bend list.

Standard Brass Flanged Fittings

For 150 Pounds Working Pressure—Air Tested

Size.....Inches	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6
90-degree Elbow, Faced only.....Each	13.00	15.00	20.00	25.00	33.75	43.75	58.75	68.00	93.00	123.00
90-degree Elbow, Faced and Drilled....Each	14.00	16.00	21.00	26.00	35.00	45.00	60.00	70.00	95.00	125.00
45-degree Elbow, Faced only.....Each	14.00	16.00	22.00	27.50	37.25	47.75	63.75	73.00	98.00	133.00
45-degree Elbow, Faced and Drilled....Each	15.00	17.00	23.00	28.50	38.50	49.00	65.00	75.00	100.00	135.00
Tee, Faced only.....Each	19.50	22.50	30.00	37.50	50.75	65.75	88.25	102.00	137.00	187.00
Tee, Faced and Drilled.....Each	21.00	24.00	31.50	39.00	52.50	67.50	90.00	105.00	140.00	190.00
Cross, Faced only.....Each	26.00	30.00	40.00	50.00	67.50	87.50	117.50	136.00	186.00	246.00
Cross, Faced and Drilled.....Each	28.00	32.00	42.00	52.00	70.00	90.00	120.00	140.00	190.00	250.00

Brass Flanged Fittings are furnished plain face and scored, unless otherwise specified. Edges of flanges are finished.
Reducing Brass Flanged Fittings made to order at special prices. 1928 Dimensions will be furnished unless otherwise specified.
In ordering, specify Faced Only or Faced and Drilled.
Standard and Extra Heavy Flanged Fittings furnished in acid resisting metal or copper if desired, at special discounts.

Extra Heavy Brass Flanged Fittings

For 250 Pounds Working Pressure—Air Tested



90° Elbow
Fig. 234
Standard

Fig. 234-M
Extra Heavy

Cast Brass Drainage Fittings

"Air Tested Under Water"



Fig. 732
90° Long
Turn Y
Branch
T-Pattern

Size Inches	90° Elbow	45° Elbow	60° Elbow	22 1/2° Elbow	11 1/4° Elbow	5 5/8° Elbow	90° Street Elbow	45° Street Elbow	3 Way Ells or Twin Ells	90° Y Branch T-Pattern	90° Long Turn Y Branch T-Pattern	90° Double Y Branch T-Pattern	90° Double Long Turn Y Branch T-Pattern	45° Y Branch	45° Double Y Branch	Coupling
	Fig. 700	Fig. 705	Fig. 710	Fig. 715	Fig. 718	Fig. 719	Fig. 720	Fig. 725	Fig. 728	Fig. 730	Fig. 732	Fig. 735	Fig. 738	Fig. 740	Fig. 745	Fig. 750
1 1/4	.95	.95	.80	.80	.80	.80	.95	.95	2.00	1.20	1.50	1.95	2.65	1.40	2.40	.80
1 1/2	1.10	1.10	1.00	1.00	1.00	1.00	1.10	1.10	2.30	1.50	1.90	2.25	2.95	1.75	2.65	1.00
2	1.75	1.75	1.50	1.50	1.50	1.50	1.60	1.60	2.95	2.25	2.80	3.45	4.00	2.55	3.85	1.50
2 1/2	3.75	3.75	3.20	3.20	3.20	3.20	.....	.....	6.00	4.80	6.20	7.60	9.55	5.60	8.65	3.20
3	4.65	4.65	3.85	3.85	3.85	3.85	.....	.....	8.00	5.85	7.75	9.05	11.75	7.05	10.65	3.85
4	7.35	7.35	6.15	6.15	6.15	6.15	...	...	13.40	9.35	11.30	14.00	16.90	10.25	15.30	6.15

BONNEY FORGE AND TOOL WORKS, ALLENTOWN, PA.

Forged Fittings Division

Manufacturers of

Bonney

WELDOLETS · THREDOLETS





Weldolets and Thredolets are stock fittings for pipe welding.

By their use, lining up work is greatly simplified and no time is lost in laying out, trimming and fitting. They practically eliminate icicles.

Weldolets and Thredolets compensate for loss of strength in the main pipe caused by cutting the hole. Their funnel shaped outlets reduce friction and turbulence.

Except in the very large sizes, which are steel castings, Weldolets and Thredolets are forged from special analysis steel suitable for good welding.

Special Sizes and Materials

Weldolets and Thredolets of materials other than steel and of special sizes are made to order. Write to Bonney Forge and Tool Works for complete information and literature on Weldolets and Thredolets.

STANDARD STOCK SIZES OF BONNEY REDUCING WELDOLETS AND THREDOLETS

Pipe Size Inches	OUTLET SIZES													
	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10
1	1x½	1x¾	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1¼	1¼x½	1¼x¾	1¼x1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1½	1½x½	1½x¾	1½x1	1½x1¼	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2	2x½	2x¾	2x1	2x1¼	2x1½	.....	.....	.....	.....	.....	.....	.....	.....	.....
2½	2½x½	2½x¾	2½x1	2½x1¼	2½x1½	2½x2	.....	.....	.....	.....	.....	.....	.....	.....
3	3x½	3x¾	3x1	3x1¼	3x1½	3x2	3x2½	.....	.....	.....	.....	.....	.....	.....
3½	3½x½	3½x¾	3½x1	3½x1¼	3½x1½	3½x2	3½x2½	3½x3	.....	.....	.....	.....	.....	.....
4	4x½	4x¾	4x1	4x1¼	4x1½	4x2	4x2½	4x3	4x3½	.....	.....	.....	.....	.....
5	5x½	5x¾	5x1	5x1¼	5x1½	5x2	5x2½	5x3	5x3½	5x4	.....	.....	.....	.....
6	6x½	6x¾	6x1	6x1¼	6x1½	6x2	6x2½	6x3	6x3½	6x4	6x5	.....	.....	.....
8	8x½	8x¾	8x1	8x1¼	8x1½	8x2	8x2½	8x3	8x3½	8x4	8x5	8x6	.....	.....
10	10x½	10x¾	10x1	10x1¼	10x1½	10x2	10x2½	10x3	10x3½	10x4	10x5	10x6	10x8*	.....
12	12x½	12x¾	12x1	12x1¼	12x1½	12x2	12x2½	12x3	12x3½	12x4	12x5	12x6	12x8*	12x10*

*These sizes are made in Weldolets only.

Full Size Outlet and Pipe Sizes, Inches

Weldolets	Thredolets
1x1	¾x¾
1¼x1¼	1x1
1½x1½	1¼x1¼
2x2	1½x1½
2½x2½	2x2
3x3	2½x2½
3½x3½	3x3
4x4	3½x3½
5x5	4x4
6x6	5x5
8x8	6x6
10x10	.....
12x12	.....



Electric Arc-Welded Assemblies Using Weldolets. For General Electric Company's New Plant, Cleveland, Ohio.



Using a Thredolet on a Main of a Large New York City Gas Company
This type of fitting has a tapped outlet

AMERICAN MANGANESE BRONZE COMPANY

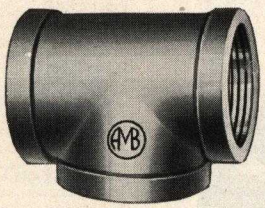
General Office and Works—Holmesburg, Philadelphia, Pa.

Brass Pipe Fittings

(Standard Flat Band Type)

125 Pounds Working Steam Pressure—175 Pounds Non-Shock Working Oil, Water or Gas Pressures at Ordinary Air Temperatures

A. M. B. RED BRASS FITTINGS fully comply with the FEDERAL MASTER SPECIFICATION CODE. They are designed to the specifications of the U. S. NAVY DEPARTMENT. These FITTINGS comply with the specifications of the AMERICAN STANDARDS and the M. S. S. The Standard Fittings are known to the trade as MARINE FITTINGS. All Fittings are individually tested hydrostatically to double their working pressure.



Standard Tee



Standard Elbow

Rough—Iron Pipe Size—Price Each

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12
Elbows, 90°.....	.12	.15	.20	.28	.40	.63	.90	1.20	2.00	3.50	6.00	8.00	10.00	$ 25.	$ 40.	$ 80.	$185.	$265.
Elbows, Reducing...	....	.19	.25	.35	.50	.80	1.10	1.50	2.50	4.25	7.50	10.00	12.50	30.	50.	100.	215.	318.
Elbows, 45°.....	.16	.20	.25	.31	.40	.63	.90	1.20	2.00	3.50	6.00	8.00	10.00	25.	40.	80.	185.	350.
Elbows, Street.....	.25	.27	.33	.48	.63	.85	1.50	2.00	3.25	6.00	10.00	.....	.....	.....	.....	.....	.....	.....
Elbows, Side Outlet.	....	.45	.60	.85	1.20	1.90	2.75	3.60	6.00	10.50	18.00	.....	.....	.....	.....	.....	.....	.....
Tees.....	.17	.21	.28	.40	.55	.85	1.25	1.70	2.80	5.00	8.50	11.00	14.00	35.	52.	110.	250.	420.
Tees, Reducing.....	....	.25	.35	.50	.70	1.05	1.55	2.10	3.50	6.25	10.50	14.00	17.50	44.	65.	140.	300.	440.
Tees, Side Outlet...	....	....	....	1.20	1.65	2.50	3.75	5.00	8.50	.....	.....	.....	.....	.....	.....	.....	.....	.....
Crosses.....	.25	.30	.40	.55	.80	1.25	1.80	2.40	4.00	7.00	12.00	16.00	20.00	50.	80.	160.	310.	578.
Crosses, Reducing...	....	.38	.50	.70	1.00	1.55	2.25	3.00	5.00	8.75	15.00	20.00	25.00	63.	100.	200.	372.	600.
Couplings.....	.10	.13	.17	.25	.37	.55	.80	1.00	1.60	2.50	3.50	5.25	7.00	15.	23.	48.	140.	200.
Couplings, R. & L..	.13	.17	.22	.30	.45	.70	1.00	1.30	2.00	3.10	4.50	.....	.....	.....	.....	.....	.....	.....
Couplings, Reduc...	....	.15	.20	.28	.40	.60	.90	1.10	1.75	2.75	4.00	6.00	8.00	19.	29.	60.	168.	240.
Bushings, Regular..	....	.10	.12	.15	.22	.35	.50	.70	1.00	1.50	2.50	3.75	5.00	12.	18.	35.	.....	.....
Bushings, Faced....	....	.12	.15	.19	.27	.44	.62	.87	1.25	1.85	3.10	4.75	6.25	.....	.....	.....	.....	.....
Plugs, Regular.....	.08	.10	.12	.15	.20	.30	.45	.60	.95	1.50	2.25	3.75	5.00	8.	12.	30.	85.	124.
Plugs, Solid.....	....	....	.18	.22	.30	.45	.80	1.20	1.90	3.00	4.50	7.50	10.00	15.	23.	60.	140.	200.
Plugs, Countersunk.	....	....	....	.22	.30	.45	.65	.90	1.40	2.25	3.40	5.60	7.00	.....	.....	.....	.....	.....
Caps.....	.10	.13	.16	.20	.30	.42	.60	.80	1.25	2.50	3.50	5.50	7.00	15.	23.	48.	140.	200.
Locknuts.....	.10	.10	.12	.15	.20	.28	.40	.55	.80	1.75	2.75	4.00	5.00	8.	12.	30.	85.	124.
Return Bends, Cl...	.30	.40	.55	.70	1.00	1.25	1.80	2.50	4.25	7.00	10.00	.....	.....	.....	.....	.....	.....	.....
Return Bends, Op..	.40	.50	.60	.80	1.10	1.40	2.15	3.00	4.75	8.25	11.00	.....	.....	.....	.....	.....	.....	.....
Wyes.....	....	....	.60	.75	1.10	1.65	2.50	3.30	5.50	9.50	16.00	21.00	26.00	63.	100.	200.	410.	590.

Note—List Prices and Discounts on Tinned, Chromium Plated Fittings, on request.

Extra Heavy Brass Pipe Fittings

250 Pounds Working Steam Pressure—400 Pounds Non-Shock Working Oil, Water or Gas Pressures at Ordinary Air Temperatures



Extra Heavy 45° Elbow

Cast Iron Pattern—Rough, Iron Pipe Size—Price Each

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	8	10	12
Elbows, 90°.....	.33	.45	.65	1.00	1.50	2.25	3.00	4.50	8.00	11.25	$ 16.	$ 22.	$ 27.	$ 35.	$ 45.	$110.	$230.	$330.
Elbows, Reducing....	.55	.75	1.20	1.80	2.60	3.50	5.25	9.00	13.00	19.	25.	30.	40.	50.	124.	255.	365.
Elbows, 45°.....	.45	.55	.75	1.10	1.65	2.50	3.25	4.50	8.00	11.25	16.	22.	27.	35.	45.	110.	230.	330.
Elbows, R. & L...	.40	.55	.75	1.20	1.80	2.60	3.50	5.25	9.00	13.00	.....	.....	.....	.....	.....	.....	.....	.....
Tees.....	.45	.60	.90	1.35	2.00	3.00	4.00	6.00	10.75	15.00	22.	30.	36.	46.	60.	150.	310.	440.
Tees, Reducing....	.70	1.05	1.55	2.30	3.50	4.50	6.75	12.00	17.00	25.	35.	40.	51.	66.	188.	340.	485.
Crosses.....	.70	.90	1.30	2.00	3.00	4.50	6.00	9.00	16.00	22.50	28.	37.	45.	60.	75.	200.	385.	550.
Crosses, Reducing.	1.10	1.50	2.40	3.60	5.25	7.00	10.50	18.00	26.00	32.	42.	50.	66.	82.	220.	425.	605.
Couplings.....	.40	.50	.70	1.10	1.65	2.25	3.00	4.50	7.00	10.00	13.	17.	21.	27.	35.	66.	175.	250.
Return Bends, Cl.	....	....	1.65	2.50	3.50	5.00	7.00	10.00	16.00	22.00	30.	40.	.....	.....	.....	.....	.....	.....
Return Bends, Op.	....	....	1.80	2.75	4.00	5.50	8.00	11.00	18.00	25.00	35.	45.	.....	.....	.....	.....	.....	.....
Wyes.....	.90	1.10	1.50	2.50	3.50	5.50	7.25	11.00	19.00	27.00	33.	45.	55.	70.	90.	225.	515.	740.

List Prices and Discounts of Extra Heavy Tinned Fittings on application.

Note—Right and Left Elbows and Right and Left Return Bends, furnished at an advance of 25% over above prices.

Bushings, Reducers and Reducing Fittings, reducing more than two sizes furnished at an advance of 25% over above prices.

Prices and dimensions of larger sizes standard and extra heavy screwed fittings furnished on request.

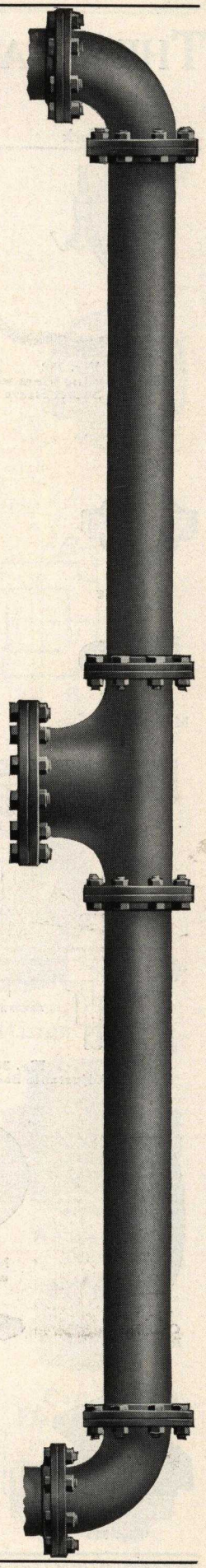


Extra Heavy Elbow

Standard and Extra Heavy Brass Flange Unions

Size.....Inches	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6
Flange Unions, 125 lbs. Working Pressure, Iron Bolts.....	4.00	4.50	5.00	5.50	7.00	9.00	11.50	$15.	$18.	$22.	$27.	$35.	$45.
Extra Heavy Flange Unions, 250 pounds Pressure.....	.....	7.50	8.50	11.00	13.00	16.00	18.00	24	27	30	37	48	60
Flange Unions, Diameter of Flanges, inches.....	.....	3¼	3⅝	4⅛	4⅝	5⅜	6	6¾	7½	8	8¾	9⅜	10⅞
Number of Bolts.....	.....	4	4	4	4	5	5	6	6	7	8	8	9

A. M. B. PIPE FITTINGS are furnished in various NON-FERROUS ALLOYS under the serial designations of the A. S. T. M. as to composition. HIGH TEMPERATURE and ACID CORROSION RESISTING PIPE FITTINGS are made of Specification BRONZES, COPPER, CUPRO NICKEL, NICKEL, ALUMINUM and ALUMINUM BRONZE ALLOYS for PROCESS PIPING. All types of FITTINGS and SPECIAL CASTINGS are furnished in ALUMINUM, ALUMINUM BRONZE, CASKALOY, EVERBRITE, EVERDUR, HY-TEN-SL BRONZE, MONEL, LEAD, NICKEL, RESISTAC, STILL METAL and TEMPALOY.



Standard and Extra Heavy Brass Flanged Fittings

Standard for Steam Working Pressures up to 150 Pounds—Extra Heavy for Steam Working Pressures up to 250 Pounds at a total temperature not exceeding 500° F.

Size.....Inches	1	1¼	1½	2	2½	3	3½	4	4½	5	6	8	10	12
Flanged 90° Elbows, Faced Only.....each	13.00	15.00	20.00	25.00	33.75	43.75	58.75	68.00	78.00	93.00	123.00	210.00	285.00	375.00
Flanged 90° Elbows, Faced and Drilled.....each	14.00	16.00	21.00	26.00	35.00	45.00	60.00	70.00	80.00	95.00	125.00	214.00	289.00	379.00
Flanged 45° Elbows, Faced Only.....each	14.00	16.00	22.00	27.50	37.25	47.75	63.75	73.00	83.00	98.00	133.00	225.00	300.00	405.00
Flanged 45° Elbows, Faced and Drilled.....each	15.00	17.00	23.00	28.50	38.50	49.00	65.00	75.00	85.00	100.00	135.00	229.00	304.00	409.00
Flanged Tees, Faced Only .....each	19.50	22.50	30.00	37.50	50.75	65.75	88.25	102.00	117.00	137.00	187.00	315.00	420.00	570.00
Flanged Tees, Faced and Drilled.....each	21.00	24.00	31.50	39.00	52.50	67.50	90.00	105.00	120.00	140.00	190.00	321.00	426.00	576.00
Flanged Crosses, Faced Only .....each	26.00	30.00	40.00	50.00	67.50	87.50	117.50	136.00	156.00	186.00	246.00	420.00	570.00	750.00
Flanged Crosses, Faced and Drilled.....each	28.00	32.00	42.00	52.00	70.00	90.00	120.00	140.00	160.00	190.00	250.00	428.00	578.00	758.00

Note—Prices and dimensions of larger sizes up to 72 inches, Reducing Fittings, Long Radius Ells, Double Sweep Tees, Base Ells and Tees, 45° Laterals, Manifolds, Taper and Eccentric Reducers, furnished on application.

A. M. B. FLANGED FITTINGS are regularly furnished in accordance with the A. S. M. E. code for dimensions and drilling on bronze flanges for 150 pounds and 250 pounds working pressure. The wall thickness complies with the specifications of the U. S. Navy Department Bureau of Engineering Standards.

Brass Companion Flanges
Standard and Extra Heavy

Standard Sizes....	1x4¼	1¼x4⅝	1½x5	2x6	2½x7	3x7½	3½x8½	4x9	4½x9¼	5x10	6x11	8x13½	10x16	12x19
Number of Bolts..	4	4	4	4	4	4	8	8	8	8	8	8	12	12
Extra Heavy Sizes.	1x4⅞	1¼x5¼	1½x6⅛	2x6½	2½x7½	3x8¼	3½x9	4x10½	4½x10½	5x11	6x12½	8x15	10x17½	12x20½
Number of Bolts..	4	4	4	8	8	8	8	8	8	8	12	12	16	16
Price Ea., F. O....	5.75	6.75	8.75	10.75	12.50	15.50	19.25	24.25	26.75	29.00	36.50	54.00	85.00	103.50
Price Ea., F. & D.	6.00	7.00	9.00	11.00	13.00	16.00	20.00	25.00	27.50	30.00	37.50	55.00	86.00	105.00

Note—Prices and dimensions of larger sizes, Reducing Flanges, Blind Flanges, Brazing Flanges, High and Double Hub Flanges, Special Flanges for all types of fabrication, furnished on request.

The PLFT Acid Resisting Plug Cock

The PLFT Plug Cock is a **Positive Lift** and consequently **Free Turning Valve,** for use primarily on **Acid Lines,**—but also in handling any corrosive liquid. It is made of various **Corrosion Resisting Metals.** Prices and discounts on request.

Note

Price and Discounts available on the following: Red Brass Fittings—Navy Specification (S-C) Fittings—Special Sizes "Larger than list"—Marine Fittings—Special Alloy Fittings—Sea Water Fittings—Acid Resisting Fittings—Copper Fittings—High Pressure Hydraulic Fittings—Special Process Flanged Fittings and Pipe. Copper, Brass and Red Brass Nipples. Brass Recessed Drainage Fittings.

THE GRABLER MFG. CO. CLEVELAND, OHIO

General Office and Factory—6565 Broadway

Branch Warehouses

New York Chicago San Francisco Los Angeles

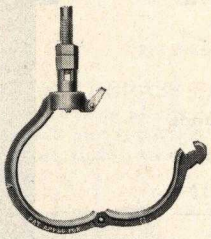


Fig. 352
Side Opening Hinge with Ball Swivel Sleeve



Fig. 351
Malleable Hanger with Ball Swivel Sleeve



Fig. 330
Steel Hinge Hanger



Fig. 320
Steel Band Hanger



Fig. 317
Malleable Iron Hinge Hanger



Fig. 64
Split Ring Hanger



Fig. 97
Clevis Hanger



Fig. 56
Pipe Strap

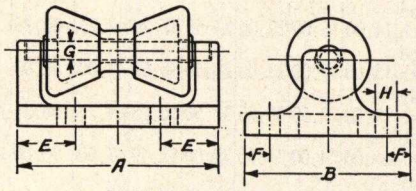


Fig. 40A
Pipe Roll on Chair

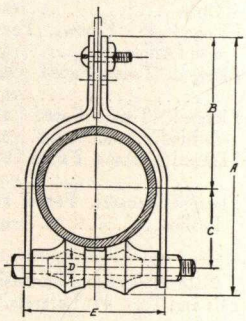


Fig. 33
Single Roller Hanger



Fig. 90
Malleable Iron Socket



Fig. 16
Drop Forged Socket



Fig. 223
Malleable Iron Clevis Socket

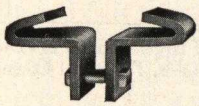


Fig. 25, 25A, 25B
Wrought Steel I Beam Clamp



Fig. 310
Extension Ba



Fig. 30
Heavy Pipe Clamp



Fig. 44
Adjustable Sprinkler Clip

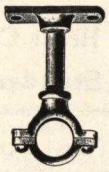


Fig. 65
Split Ring Hanger with Nipple and Plate



Fig. 203
Hanger Ring

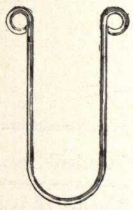


Fig. 343
U Hanger with Turned Eyes

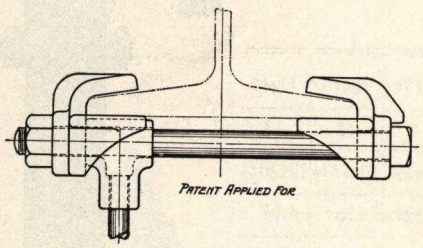


Fig. 388
Adjustable Beam Clamp



Fig. 31
Heavy Extension Pipe Clamp



Fig. 219
Flattened Lag Screw



Fig. 20
Threaded Lag Screw



Fig. 226
Cast Iron Riser Cup

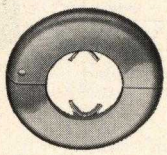


Fig. 76
Hinge Floor and Ceiling Plate

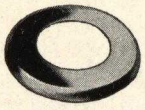


Fig. 68
One-Piece Floor Plate



Fig. 70



Fig. 70A

Cast Iron Floor and Ceiling Plates

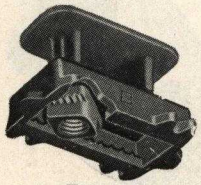


Fig. 315

Malleable Iron Concrete Inserts Fig. 315 with, and Fig. 244 without Removable Nut.

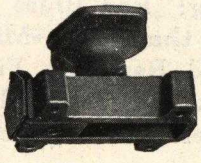


Fig. 244

Our complete Hanger Catalog illustrates and describes over 1000 types and sizes of pipe hangers and allied products.

Our Engineering Department is at all times prepared, in collaboration with our customers, to work out special designs to meet any and all requirements.

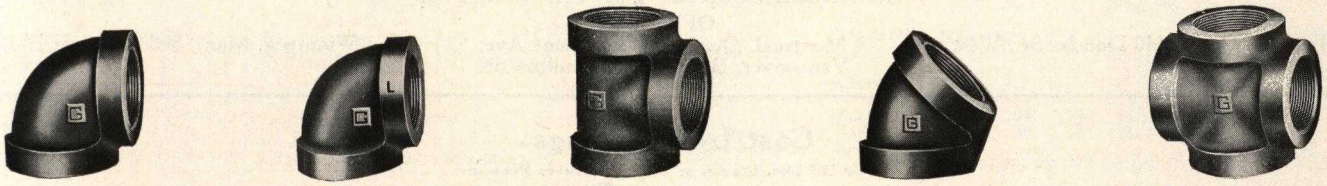


Square "Gee" Malleable Iron Pipe Fittings

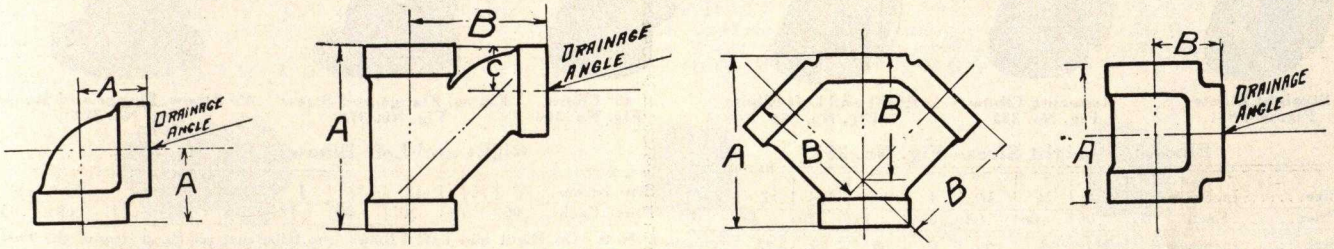
Banded and Plain



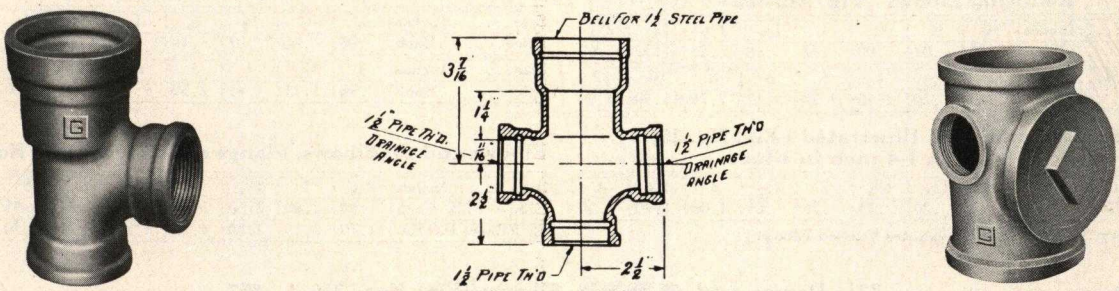
Square "Gee" Cast Iron Screwed Fittings



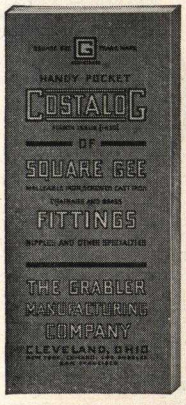
Square "Gee" Cast Iron Drainage Fittings



Square "Gee" Patented Drainage Fittings



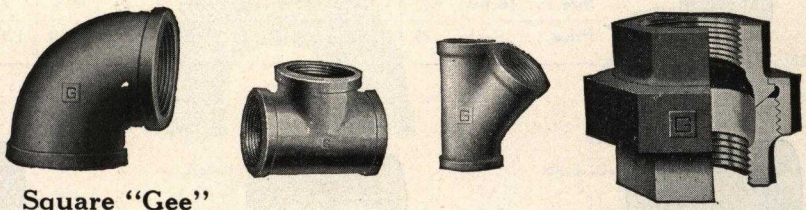
Screw Type



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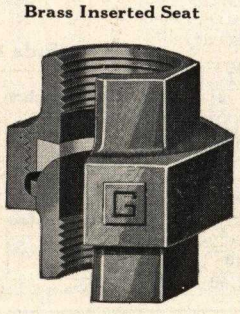
The Square "Gee" Costalog illustrates complete line of Square "Gee" Fittings. Provides under each item necessary figures as to price, weights and quantities that will enable plumbers to compute estimates quickly and correctly without any confusing cross-references to separate catalogs and price lists. Write for your copy now.

Square "Gee" Brass Pipe Fittings

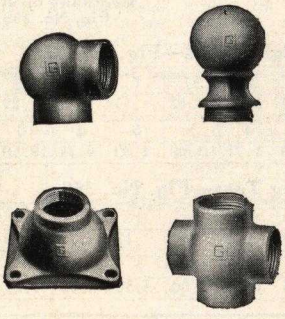


Square "Gee" Malleable Iron Ground Joint Union

Brass Inserted Seat



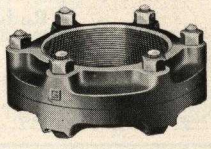
Malleable Iron Railing Fittings



Wrought Steel Nipples



Cast Iron Flange Unions



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Cast Iron Fittings

For 125 Lbs. Steam or 175 Lbs. Water Pressure



Straight Elbow Fig. No. 351



Reducing Elbow Fig. No. 352



Right and Left Elbow Fig. No. 353



45° Elbow Fig. No. 356



Elbow, Flange and Screw Fig. No. 371



45° Elbow, Flange and Screw Fig. No. 372

Elbows, Straight Sizes—Fig. No. 351

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½
Price.....Each	.05	.05	.06	.08	.10½	.16	.20	.28	.50

Size.....Inches	3	3½	4	5	6	8	10	12
Price.....Each	.75	1.05	1.20	2.00	2.75	6.75	13.50	20.00

Reducing Elbows—Fig. No. 352

Size.....Inches	⅜	½	¾	1	1¼	1½	2	2½
Price.....Each	.06	.07	.09	.12	.18	.23	.32	.60

Size.....Inches	3	3½	4	5	6	8	10	12
Price.....Each	.85	1.20	1.40	2.30	3.15	7.75	15.50	23.00

Pitched Elbows—Not Illustrated—Fig. No. 354
Tapped to pitch 1-4 inch in 1 foot

Size.....Inches	¾	1	1¼	1½	2	2½	3	3½	4
Price.....Each	.10	.13	.20	.25	.35	.65	1.00	1.30	1.50

Note—Letter "P" cast on body denotes Pitched Elbow.

Right and Left Elbows—Fig. No. 353

Size. Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Price..Each	.06	.06	.07	.09	.12	.18	.23	.32	.60	.85

Note—On Right and Left Elbows, the Ribs cast on Band denote the Left Hand Thread.

45 Degree Elbows—Fig. No. 356

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½
Price.....Each	.06	.06	.07	.10	.12	.19	.24	.34	.60

Size.....Inches	3	3½	4	5	6	8	10	12
Price.....Each	.90	1.25	1.45	2.50	3.45	8.50	17.00	25.00

Elbows and 45° Elbows, Flange and Screw—Fig. Nos. 371, 372

Size.....Inches	2½	3	3½	4	5	6	8	10	12
Elbow, F. S..Each	1.60	2.00	2.60	3.00	4.05	5.25	10.55	19.00	27.65
45°Elbows,F.S.Ea.	1.70	2.15	2.80	3.25	4.55	5.95	12.30	22.50	32.65



22½-Degree Elbow Fig. No. 356-A

22½-Degree and 60-Degree Elbows—Fig. Nos. 356-A, 357

Size.....Inches	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8
Price.....Each	.25	.30	.35	.45	.50	.60	1.10	1.65	2.25	2.75	5.00	7.00	17.00



60-Degree Elbow Fig. No. 357



Straight Tee Fig. No. 358



Reducing on Run Fig. No. 359



Side Outlet Elbow Fig. No. 363



Side Outlet Tee Fig. No. 364

Tees, Straight Sizes—Fig. No. 358

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½
Price.....Each	.08	.08	.09	.12	.15	.23	.29	.41	.73

Size.....Inches	3	3½	4	5	6	8	10	12
Price.....Each	1.10	1.50	1.75	3.00	4.00	9.75	19.50	29.00

Reducing Tees—Fig. No. 359

Size.....Inches	⅜	½	¾	1	1¼	1½	2	2½
Price.....Each	.09	.10	.14	.17	.27	.33	.47	.83

Size.....Inches	3	3½	4	5	6	8	10	12
Price.....Each	1.25	1.75	2.00	3.50	4.60	11.25	22.50	33.50

Side Outlet Elbows, Straight Sizes—Fig. No. 363

Size...Inches	½	¾	1	1¼	1½	2	2½	3	4	5	6
Price...Each	.18	.24	.30	.48	.60	.84	1.50	2.25	3.60	6.00	8.25

Side Outlet Tees, Straight Sizes—Fig. No. 364

Size...Inches	½	¾	1	1¼	1½	2	2½	3	4	5	6
Price...Each	.27	.36	.45	.70	.90	1.25	2.25	3.25	5.25	9.00	12.00

Sizes not listed above made to order at special net prices.

Cast Iron Fittings

For 125 Lbs. Steam or 175 Lbs. Water Pressure



Straight Cross
Fig. No. 360



Reducing Cross
Fig. No. 361



Y
Fig. No. 373



Y, Flange and Screw
Fig. No. 374

Crosses, Straight Sizes—Fig. No. 360

Size...Inches	¼	⅜	½	¾	1	1¼	1½	2	2½
Price...Each	.15	.15	.16	.22	.27	.42	.53	.75	1.30
Size.....Inches	3	3½	4	5	6	8	10	12	
Price.....Each	2.00	2.70	3.15	5.50	7.25	17.50	35.00	52.50	

Reducing Crosses—Fig. No. 361

Size.....Inches	½	¾	1	1¼	1½	2	2½	3
Price.....Each	.18	.25	.30	.46	.60	.83	1.45	2.20
Size.....Inches	3½	4	5	6	8	10	12	
Price.....Each	3.00	3.50	6.00	8.00	19.25	38.50	58.00	

Y's—Fig. Nos. 373, 374

Size.....Inches	½	¾	1	1¼	1½	2	2½	3
Price, Screw.....Each	.20	.28	.34	.54	.66	.94	1.66	2.50
Price, Reducing Screw.....Each	.23	.33	.40	.62	.76	1.08	1.90	2.90
Price, Flange and Screw.....Each	.....	.....	.....	.....	.....	.....	2.76	3.75

Size.....Inches	3½	4	5	6	8	10	12
Price, Screw.....Each	3.50	4.00	7.00	9.20	22.50	45.00	67.00
Price, Reducing Screw.....Each	4.00	4.60	8.00	10.60	26.00	51.75	77.00
Price, Flange and Screw.....Each	5.05	5.80	9.05	11.70	26.30	50.50	74.65

Sizes not listed above, Crosses, Reducing Crosses and Y's, made to order at special net prices. Y's are made reducing to order by filling up ends thus avoiding the use of screwed bushings. Dimensions remain the same as straight sizes.



Standard Flange Unions
Fig. No. 487



Reducers
Fig. No. 367



Eccentric Reducers
Fig. No. 368

Size.....Inches	½	¾	1	1¼	1½
Price.....Each	.40	.46	.52	.64	.78
Size.....Inches	2	2½	3	3½	4
Price.....Each	1.00	1.25	1.50	1.80	2.10
Size.....Inches	5	6	8	10	12
Price.....Each	3.15	3.95	7.00	11.50	16.00

Size.....Inches	¾ x ½	1 x ½	2 x 1½ 2 x 1¼ 2 x 1	2½x2 2½x1½ 2½x1¼ 2½x1 2½x ¾	3 x2½ 3 x2 3 x1½ 3 x1¼ 3 x1	3½x3 3½x2½ 3½x2
Price.....Each	.10	.16	.43	.60	.80	1.00

Size.....Inches	4 x3½ 4 x3 4 x2½ 4 x2 4 x1½	5 x4 5 x3½ 5 x3 5 x2½ 5 x2	6 x5 6 x4 6 x3½ 6 x3 6 x2½	8 x6 8 x5 8 x4	10x8 10x6
Price.....Each	1.35	2.00	2.70	6.75	10.00

Size....Inches	1¼x1 1¼x ¾ 1¼x ½	1½x1¼ 1½x1 1½x ¾	2 x1½ 2 x1¼ 2 x1 2 x ¾	2½x2 2½x1½ 2½x1¼ 2½x1	3 x2½ 3 x2 3 x1½ 3 x1¼ 3 x1
Price....Each	.55	.72	1.00	1.50	2.40

Size....Inches	3½x3 3½x2½ 3½x2 3½x1½ 3½x1¼ 3½x1	4 x3½ 4 x3 4 x2½ 4 x2 4 x1½ 4 x1¼ 4 x1	5 x4 5 x3½ 5 x3 5 x2½ 5 x2	6 x5 6 x4 6 x3½ 6 x3 6 x2½ 6 x2	8 x6 8 x5 8 x4
Price....Each	3.00	4.00	6.00	8.00	11.00

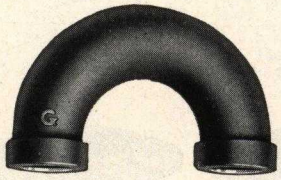
Return Bends



Close Pattern
Fig. No. 375



Open Pattern
Fig. No. 376



Special Wide Pattern
Fig. No. 377



Back Outlet—Open Pattern
Fig. No. 379

Close Pattern—Fig. No. 375

Size.....Inches	½	¾	1	1¼	1½	2
Price, R. H.....Each	.18	.20	.22	.28	.40	.57
Price, R. & L.....Each	.21	.23	.26	.33	.46	.66
Price, L. H.....Each	.21	.23	.26	.33	.46	.66
Price, R. H. Pitched.....Each	.....	.23	.26	.33	.....	.....
Price, R. & L. or L. H. Ptd....Each	.....	.23	.26	.33	.....	.....
Center to Center.....Inches	1¼	1½	1¾	2 3/16	2½	3

Open Pattern—Fig. No. 376

Size.....Inches	½	¾	1	1¼	1½	2
Price, R. H.....Each	.25	.26	.30	.40	.55	.80
Price, R. & L.....Each	.30	.30	.35	.46	.64	.92
Price, L. H.....Each	.30	.30	.35	.46	.64	.92
Center to Center.....Inches	2	2¼	2½	3	3½	4½

Right and Left and Left Hand Pitched Return Bends are made to order.

Special Wide Pattern—Fig. No. 377

Size.....Inches	1	1	1¼	1¼	1½	1½	2
Price, Black.....Each	.50	.60	1.00	1.25	1.60	2.00	2.00
Price, Galvanized.....Each	.90	1.10	1.75	2.00	2.60	3.25	3.25
Center to Center.....Inches	4	5	4½	6	6	7½	6

Return Bends not listed will be furnished at special net prices.

Back Outlet—Close Pattern—Fig. No. 378

Size.....Inches	¾	1	1¼	1½	2
Price, R. H.....Each	.38	.42	.60	.80	1.15
Price, R. & L.....Each	.42	.48	.70	.95	1.30
Center to Center.....Inches	1½	1¾	2 3/16	2½	3

Back Outlet—Open Pattern—Fig. No. 379

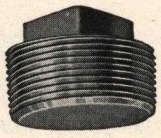
Size.....Inches	¾	1	1¼	1½	2
Price, R. H.....Each	.38	.42	.60	.80	1.15
Price, R. & L.....Each	.42	.48	.70	.95	1.30
Center to Center.....Inches	2¼	2½	3	3½	4½

Cast Iron Fittings

For 125 Lbs. Steam or 175 Lbs. Water Pressure



Plug
Fig. No. 387



Solid Plug
Fig. No. 388



Countersunk Plug
Fig. No. 390



Hex Bushing
Fig. No. 383



Face Bushing
Fig. No. 385



Locknut
Fig. No. 382



Cap
Fig. No. 381

Plugs—Fig. No. 387

Size, Inches	¼	⅜	½	¾	1	1¼	1½	2	2½
Price, Right Hand, Each	.02	.02	.02	.03	.04	.05	.07	.10	.18
Price, Left Hand, Each	....	....	.04	.06	.08	.09	.11	.15	....

Size, Inches	3	3½	4	5	6	8	10	12
Price, Right Hand, Each	.25	.38	.42	.88	1.20	2.75	3.75	5.00

Countersunk Plugs—Fig. No. 390

Size, Inches	½	¾	1	1¼	1½	2	2½	3	3½	4
Price, Countersunk, Each	.04	.06	.08	.09	.11	.15	.30	.40	.92	1.10

Solid Plugs—Fig. No. 388

Size, Inches	⅛	¼	⅜	½	¾	1	1¼
Price, Each	.04	.04	.04	.04	.06	.08	.09

Size, Inches	1½	2	2½	3	3½	4
Price, Each	.11	.15	.27	.38	.57	.63

Bushings—Fig. Nos. 383, 385

Size, Inches	⅜	½	¾	1	1¼	1½	2	2½
Hex Bushings	.04	.04	.05	.06	.07	.09	.14	.21
Face Bushings	.08	.09	.11	.13	.17	.22	.32	.48

Size, Inches	3	3½	4	5	6	8	10	12
Hex Bushings	.30	.40	.50	.93	1.25	2.75	3.75	5.00
Face Bushings	.70	1.20	1.50	2.60	3.75	9.00	.....	.....

Locknuts—Fig. No. 382

Size, Inches	2½	3	3½	4	5	6
Price, Each	.27	.34	.47	.64	.90	1.30

Caps—Fig. No. 381

Size, Inches	2½	3	3½	4	5	6	8	10	12
Price, Each	.40	.54	.75	.87	1.20	1.55	2.85	5.50	7.00

Sizes not listed above, made to order at special net prices.

Galvanized Cast Iron Fittings

Size, Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12
Elbows, Each	.10	.10	.12	.16	.21	.32	.40	.56	1.00	1.50	2.10	2.40	4.00	5.50	13.50	27.00	40.00
Elbows, Reducing, Each	.....	.12	.14	.18	.24	.36	.46	.64	1.20	1.70	2.40	2.80	4.60	6.30	15.50	31.00	46.00
Elbows, R. & L., Each	.....	.12	.14	.18	.24	.36	.46	.64	1.20	1.70	.....	.....	.....	.....	.....	.....	.....
Elbows, 45 Degree, Each	.12	.12	.14	.20	.24	.38	.48	.68	1.20	1.80	2.50	2.90	5.00	6.90	17.00	34.00	50.00
Elbows, Side Outlet, Each	.....	.....	.36	.48	.60	.96	1.20	1.68	3.00	4.50	.....	7.20	12.00	16.50	.....	.....	.....
Tees, Each	.16	.16	.18	.24	.30	.46	.58	.82	1.46	2.20	3.00	3.50	6.00	8.00	19.50	39.00	58.00
Tees, Reducing, Each	.....	.18	.20	.28	.34	.54	.66	.94	1.66	2.50	3.50	4.00	7.00	9.20	22.50	45.00	67.00
Tees, Side Outlet, Each	.....	.....	.54	.72	.90	1.40	1.80	2.50	4.50	6.50	.....	10.50	18.00	24.00	.....	.....	.....
Crosses, Each	.30	.30	.32	.44	.54	.84	1.06	1.50	2.60	4.00	5.40	6.30	11.00	14.50	35.00	70.00	105.00
Crosses, Reducing, Each	.....	.....	.36	.50	.60	.92	1.20	1.66	2.90	4.40	6.00	7.00	12.00	16.00	38.50	77.00	116.00
Reducers, Each	.....	.....	.....	.20	.32	.....	.....	.86	1.20	1.60	2.00	2.70	4.00	5.40	.....	.....	.....
Bushings, Each	.....	.08	.08	.10	.12	.14	.18	.28	.42	.60	.80	1.00	1.85	2.50	5.50	7.50	10.00
Plugs, Each	.04	.04	.04	.06	.08	.10	.14	.20	.36	.50	.76	.84	1.75	2.40	5.50	7.50	10.00
Plugs, Counter-sunk, Each	.....	.....	.08	.12	.16	.18	.22	.30	.60	.80	1.84	2.20	.....	.....	.....	.....	.....
Caps, Each	.....	.....	.....	.....	.....	.....	.....	.....	.80	1.08	1.50	1.74	2.40	3.10	5.70	11.00	14.00
Flange Unions, Standard, Each	.....	.....	.80	.92	1.04	1.28	1.56	2.00	2.50	3.00	3.60	4.20	6.30	7.90	14.00	23.00	32.00
Return Bends, Close, Each	.....	.....	.36	.40	.44	.56	.80	1.14	.....	.....	.....	.....	.....	.....	.....	.....	.....
Return Bends, Open, Each	.....	.....	.50	.52	.60	.80	1.10	1.60	.....	.....	.....	.....	.....	.....	.....	.....	.....
Return Bends, Close, B. O., Each	.....	.....	.....	.76	.84	1.20	1.60	2.30	.....	.....	.....	.....	.....	.....	.....	.....	.....
Y's, Each	.....	.....	.40	.56	.68	1.08	1.32	1.88	3.32	5.00	7.00	8.00	14.00	18.40	45.00	90.00	134.00
Y's, Reducing, Each	.....	.....	.46	.66	.80	1.24	1.52	2.16	3.80	5.80	8.00	9.20	16.00	21.20	52.00	103.50	154.00
Locknuts, Each	.....	.....	.....	.....	.....	.....	.....	.....	.54	.68	.94	1.28	1.80	2.60	.....	.....	.....



Floor Plate
Fig. No. 396



Floor Socket
Fig. No. 397



Split Floor Socket
Fig. No. 398



Concrete
Floor Socket
Fig. No. 399



Floor Flange
Fig. No. 1006



Ceiling Plate
Fig. No. 395

Floor Plates, Sockets and Flanges

Size, Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12
Floor Plates, Fig. No. 396, Each	.06	.06	.06	.06	.08	.11	.14	.16	.24	.30	.35	.42	.60	.75	1.75	2.50	3.00
Floor Sockets, Fig. Nos. 397, 398, Each	.....	.06	.06	.06	.08	.11	.14	.16	.24	.30	.35	.42	.60	.75	1.75	.....	.....
Concrete Floor Sockets, Fig. No. 399, Each	.....	.50	.60	.70	.80	1.00	1.10	1.40	1.50	1.85	1.90	2.20	3.80	4.00	4.75	.....	.....
Floor Flanges, Fig. No. 1006, Each	.10	.10	.15	.15	.16	.16	.22	.35	.50	.80	.....	.....	.....	.....	.....	.....	.....

Ceiling Plates, with Set Screws—Fig. No. 395

Size, Inches	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	.12
Price, Each	.11	.13	.16	.18	.23	.27	.36	.50	.55	.68	.95	1.25	2.50	3.00	3.50



End Outlet
Fig. No. 391



End Back Outlet
Fig. No. 392

Cast Iron Fittings

Branch Tees

For 125 Lbs. Steam Pressure



Back Outlet
Fig. No. 393



Side Outlet
Fig. No. 394

Branch Tees—Fig. Nos. 391, 392, 393, 394

Number of Branches	2	3	4	5	6	7	8	9	10	11	12	13
1- inch Branch Tees, 1- inch or 1¼-inch run	0.90	1.05	1.15	1.35	1.60	1.90	2.20	2.65	3.15	3.75	4.40	5.00
1- inch Branch Tees, 1½-inch run	1.00	1.15	1.30	1.45	1.75	2.20	2.45	2.90	3.30	4.50	4.75	5.50
1- inch Branch Tees, 2- inch run	1.15	1.35	1.60	1.85	2.10	2.45	2.75	3.40	4.00	4.80	5.10	6.00
1- inch Branch Tees, 2½-inch run	.....	.....	2.40	2.75	3.10	3.50	3.75	4.30	5.00	5.50	5.85	.....
1¼-inch Branch Tees, 1¼-inch or 1½-inch run	1.30	1.65	2.00	2.40	2.80	3.20	3.60	4.30	4.80	5.00	5.25	6.00
1¼-inch Branch Tees, 2- inch run	1.50	1.90	2.40	2.90	3.30	3.90	4.50	5.25	5.85	6.25	6.50	7.00
1¼-inch Branch Tees, 2½-inch run	1.95	2.40	2.85	3.55	3.95	4.20	4.95	6.15	6.85	7.25	7.65	.....
1½-inch Branch Tees, 1½-inch or 2-inch run	2.10	2.70	3.35	4.00	4.65	5.25	5.85	6.50	7.60	8.00	8.50	9.50
1½-inch Branch Tees, 2½-inch run	2.85	3.45	4.15	5.00	5.75	6.50	7.00	8.25	9.25	9.75	10.50	11.50
1½-inch Branch Tees, 3- inch run	.....	.....	.....	.....	.....	7.25	7.75	9.00	10.00	10.75	11.50	.....
2- inch Branch Tees, 2- inch run	.....	5.25	6.40	7.65	8.80	10.60	11.50	12.25	.....	.....	.....	.....
2- inch Branch Tees, 2½-inch run	.....	5.75	7.00	8.50	9.75	11.75	12.75	13.50	.....	.....	.....	.....
2- inch Branch Tees, 3- inch run	.....	5.75	7.00	8.50	9.75	11.75	12.75	13.50	.....	.....	.....	.....

Branch Tees with back or side outlet use next higher list.

Wrought Nipples

Wrought Nipples—Threaded Right Hand

Length in Inches			Size Pipe	Prices		Length and Prices, Extra Long Nipples								
Close	Short	Long		Close or Short	Long	4	5	6	7	8	9	10	11	12
¾	1½	2, 2½, 3, 3½	⅛	.04	.06	.07	.08	.10	.12	.14	.15	.17	.18	.19
⅞	1½	2, 2½, 3, 3½	¼	.04	.06	.07	.08	.10	.12	.14	.15	.17	.18	.19
1	1½	2, 2½, 3, 3½	⅜	.04	.06	.07	.08	.10	.12	.14	.15	.17	.18	.19
1⅛	1½	2, 2½, 3, 3½	½	.05	.07	.08	.10	.12	.14	.16	.18	.20	.22	.23
1⅜	2	2½, 3, 3½, 4	¾	.06	.09		.11	.13	.17	.18	.20	.22	.24	.26
1½	2	2½, 3, 3½, 4	1	.08	.13		.15	.18	.23	.25	.28	.31	.34	.36
1⅝	2½	3, 3½, 4, 4½	1¼	.11	.17		.20	.24	.29	.33	.36	.40	.44	.47
1¾	2½	3, 3½, 4, 4½	1½	.13	.20		.25	.29	.36	.40	.45	.50	.54	.59
2	2½	3, 3½, 4, 4½	2	.18	.27		.32	.38	.50	.54	.59	.65	.72	.77
2½	3	3½, 4, 4½, 5	2½	.39	.59			.68	.90	.97	1.06	1.17	1.26	1.35
2⅝	3	3½, 4, 4½, 5	3	.48	.72			.85	1.08	1.20	1.33	1.45	1.58	1.70
2¾	4	4½, 5, 5½, 6	3½	.75	1.05				1.30	1.45	1.60	1.75	1.90	2.05
2⅞	4	4½, 5, 5½, 6	4	.85	1.20				1.52	1.69	1.87	2.05	2.22	2.40
3	4½	5, 5½, 6, 6½	5	1.55	2.45				2.58	2.83	3.10	3.35	3.60	3.85
3⅛	4½	5, 5½, 6, 6½	6	1.85	2.90				3.05	3.35	3.70	4.00	4.30	4.65
3½	5		8	3.55				4.05	4.55	5.05	5.50	6.00	6.50	7.00
3⅞	5		10	6.75						8.25	8.90	9.70	10.40	11.15
4½	6		12	8.00						10.00	10.80	11.75	12.70	13.65

Length of Close Nipples to Manufacturers' Standard. Extra Heavy Nipples double above list.

Double Extra Heavy Nipples made to order and charged as pipe, cuts and threads.

Wrought Galvanized Nipples—Threaded Right Hand

Length in Inches			Size Pipe	Prices		Length and Prices, Extra Long Nipples								
Close	Short	Long		Close or Short	Long	4	5	6	7	8	9	10	11	12
¾	1½	2, 2½, 3, 3½	⅛	.06	.11	.12	.15	.17	.21	.24	.26	.29	.31	.34
⅞	1½	2, 2½, 3, 3½	¼	.06	.11	.12	.15	.17	.21	.24	.26	.29	.31	.34
1	1½	2, 2½, 3, 3½	⅜	.06	.11	.12	.15	.17	.21	.24	.26	.29	.31	.34
1⅛	1½	2, 2½, 3, 3½	½	.06	.11	.13	.16	.18	.23	.26	.28	.31	.33	.36
1⅜	2	2½, 3, 3½, 4	¾	.08	.14		.18	.21	.26	.29	.32	.35	.38	.41
1½	2	2½, 3, 3½, 4	1	.11	.19		.24	.28	.34	.38	.42	.47	.51	.55
1⅝	2½	3, 3½, 4, 4½	1¼	.17	.29		.32	.38	.45	.51	.57	.63	.69	.75
1¾	2½	3, 3½, 4, 4½	1½	.21	.35		.39	.46	.55	.63	.70	.77	.84	.91
2	2½	3, 3½, 4, 4½	2	.27	.47		.52	.61	.74	.83	.93	1.03	1.13	1.23
2½	3	3½, 4, 4½, 5	2½	.56	.86			1.00	1.26	1.41	1.56	1.71	1.86	2.01
2⅝	3	3½, 4, 4½, 5	3	.70	1.10			1.30	1.60	1.80	2.00	2.20	2.40	2.60
2¾	4	4½, 5, 5½, 6	3½	1.20	1.70				2.10	2.35	2.60	2.85	3.15	3.40
2⅞	4	4½, 5, 5½, 6	4	1.35	1.87				2.30	2.60	2.90	3.20	3.50	3.80
3	4½	5, 5½, 6, 6½	5	2.30	3.15				3.75	4.20	4.60	5.00	5.40	5.85
3⅛	4½	5, 5½, 6, 6½	6	2.80	4.25				4.50	5.00	5.55	6.05	6.60	7.15
3½	5		8	5.00				5.80	6.65	7.50	8.35	9.25	10.10	10.95

For List Prices on Extra Heavy Galvanized Nipples, add the List Prices of Standard Black Nipples to the List Prices given above.

Wrought Nipples—Threaded Right and Left

Length in Inches			Size Pipe	Prices		Length and Prices, Extra Long Nipples								
Close	Short	Long		Close or Short	Long	4	5	6	7	8	9	10	11	12
¾	1½	2, 2½, 3, 3½	⅛	.05	.08	.09	.11	.13	.16	.18	.20	.23	.25	.27
⅞	1½	2, 2½, 3, 3½	¼	.05	.08	.09	.11	.13	.16	.18	.20	.23	.25	.27
1	1½	2, 2½, 3, 3½	⅜	.05	.08	.09	.11	.13	.16	.18	.20	.23	.25	.27
1⅛	1½	2, 2½, 3, 3½	½	.07	.10	.11	.13	.16	.18	.21	.24	.27	.29	.31
1⅜	2	2½, 3, 3½, 4	¾	.08	.12		.15	.17	.23	.25	.27	.29	.32	.35
1½	2	2½, 3, 3½, 4	1	.11	.18		.20	.24	.31	.33	.37	.41	.45	.48
1⅝	2½	3, 3½, 4, 4½	1¼	.15	.23		.27	.32	.39	.45	.50	.55	.60	.65
1¾	2½	3, 3½, 4, 4½	1½	.18	.27		.34	.39	.48	.52	.60	.67	.72	.80
2	2½	3, 3½, 4, 4½	2	.24	.36		.43	.51	.67	.72	.80	.87	.96	1.03
2½	3	3½, 4, 4½, 5	2½	.52	.79			.91	1.20	1.30	1.40	1.55	1.68	1.80
2⅝	3	3½, 4, 4½, 5	3	.65	.96			1.13	1.44	1.60	1.77	1.93	2.10	2.27
2¾	4	4½, 5, 5½, 6	3½	1.00	1.40				1.75	1.95	2.15	2.35	2.55	2.75
2⅞	4	4½, 5, 5½, 6	4	1.15	1.60				2.00	2.25	2.50	2.75	3.00	3.25

Add 60 per cent to above prices for galvanized nipples threaded right and left.

Brass Pipe Nipples

Iron Pipe Size

Size Pipe	Length Close	Price Close	Length and Prices									
			1½	2	2½	3	3½	4	4½	5	5½	6
⅛	¾	.11	.13	.15	.17	.19	.21	.23	.25	.27	.29	.31
¼	⅞	.13	.16	.19	.22	.25	.28	.31	.34	.37	.40	.43
⅜	1	.15	.19	.23	.27	.31	.35	.39	.43	.47	.51	.55
½	1⅛	.23	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70
¾	1⅜	.28		.35	.42	.49	.56	.63	.70	.77	.84	.91
1	1½	.37		.44	.53	.62	.71	.80	.89	.98	1.07	1.16
1¼	1⅝	.60			.75	.88	1.01	1.14	1.27	1.40	1.53	1.66
1½	1¾	.70			.90	1.05	1.20	1.35	1.50	1.65	1.80	1.95
2	2	1.00			1.20	1.40	1.60	1.80	2.00	2.20	2.40	2.60
2½	2½	1.70				2.00	2.30	2.60	2.90	3.20	3.50	3.80
3	2⅝	2.50				2.90	3.30	3.70	4.10	4.50	4.90	5.30
3½	2¾	4.00						5.40	6.00	6.60	7.20	7.80
4	2⅞	4.75						6.15	6.85	7.55	8.25	8.95
5	3	8.50							10.60	11.65	12.70	13.75
6	3⅛	11.50							14.10	15.40	16.70	18.00

Finished Brass Nipples longer than Close, 25 per cent extra.

Malleable Iron Fittings

Standard Pattern
Flat Band Fittings for 150 Lbs. Saturated Steam Working Pressure



Elbow
Fig. No. 1101



Elbow, Right and Left
Fig. No. 1101-L



Reducing Elbow
Fig. No. 1101-R



45° Elbow
Fig. No. 1102



Tee—Fig. No. 1105



Cross—Fig. No. 1107

Elbows, Straight—Fig. No. 1101

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½
Price, R. H., Black....Each	$0.05	$0.05	$0.06	$0.07	$0.10	$0.13	$0.20	$0.25
Price, R. H., Galv.....Each	.07	.07	.08	.09	.13	.17	.26	.33

Size.....Inches	2	2½	3	3½	4	5	6
Price, R. H., Black.....Each	$0.40	$0.72	$1.00	$1.50	$1.80	$3.25	$4.65
Price, R. H., Galv.....Each	.52	.95	1.30	1.95	2.35	4.25	6.05

Elbows, Right and Left—Fig. No. 1101-L

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2
Price, R. & L., Black...Each	$0.06	$0.07	$0.08	$0.12	$0.15	$0.23	$0.29	$0.46
Price, R. and L., Galv..Each	.08	.09	.10	.16	.20	.30	.38	.60

Ribs cast on Band of Right and Left Elbows denote the Left Hand Thread.

Elbows, Reducing—Fig. No. 1101-R

Size.....Inches	¼	⅜	½	¾	1	1¼
Price, Black.....Each	$0.06	$0.07	$0.08	$0.11	$0.14	$0.22
Price, Galv.....Each	.08	.09	.10	.14	.18	.29

Size.....Inches	1½	2	2½	3	3½	4
Price, Black.....Each	$0.28	$0.44	$0.80	$1.10	$1.65	$2.00
Price, Galv.....Each	.36	.57	1.05	1.45	2.15	2.60

45° Elbows—Fig. No. 1102

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½
Price, Black.....Each	$0.06	$0.06	$0.07	$0.09	$0.12	$0.16	$0.24	$0.30
Price, Galv.....Each	.08	.08	.09	.12	.16	.21	.31	.39

Size.....Inches	2	2½	3	3½	4	5	6
Price, Black.....Each	$0.48	$0.86	$1.20	$1.80	$2.20	$3.90	$5.60
Price, Galv.....Each	.62	1.10	1.55	2.35	2.85	5.10	7.30



90° Street Elbow
Fig. No. 1103



40° Street Elbow
Fig. No. 1104



Service Tee
Fig. No. 1106



45° Y-Branch or Lateral
Fig. No. 1108

90° Street Elbows, Straight—Fig. No. 1103

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	4
Price, 90 deg., Black..Each	.06	.06	.07	.08	.12	.15	.23	.29	.46	.83	1.15	2.10
Price, 90 deg., Galv...Each	.08	.08	.09	.10	.16	.20	.30	.38	.60	1.10	1.50	2.75

90° Street Elbows, Reducing—Fig. No. 1103

Size.....Inches	¾	1	1¼	1½	2
Price, 90 degrees, Black.....Each	$0.13	$0.17	$0.25	$0.32	$0.51
Price, 90 degrees, Galv.....Each	.17	.22	.33	.42	.66

45° Street Elbows—Fig. No. 1104

Size.....Inches	⅜	½	¾	1	1¼	1½	2
Price, 45 degrees, Black.....Each	$0.08	$0.10	$0.14	$0.18	$0.28	$0.35	$0.55
Price, 45 degrees, Galv.....Each	.10	.13	.18	.23	.36	.46	.72

Tees, Straight—Fig. No. 1105

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½
Price, Black.....Each	$0.07	$0.07	$0.08	$0.10	$0.13	$0.17	$0.26	$0.33
Price, Galv.....Each	.09	.09	.10	.13	.17	.22	.34	.43

Size.....Inches	2	2½	3	3½	4	5	6
Price, Black.....Each	$0.52	$0.90	$1.30	$2.00	$2.40	$4.25	$6.00
Price, Galv.....Each	.68	1.20	1.70	2.60	3.10	5.55	7.80

Tees, Reducing—Fig. No. 1105

Size.....Inches	¼	⅜	½	¾	1	1¼	1½
Price, Black.....Each	$0.08	$0.09	$0.11	$0.15	$0.19	$0.29	$0.37
Price, Galv.....Each	.10	.12	.14	.20	.25	.38	.48

Size.....Inches	2	2½	3	3½	4	5	6
Price, Black.....Each	$0.57	$1.00	$1.45	$2.20	$2.65	$4.70	$6.60
Price, Galv.....Each	.75	1.30	1.90	2.85	3.45	6.10	8.60

Crosses, Straight—Fig. No. 1107

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½
Price, Black.....Each	$0.09	$0.09	$0.11	$0.13	$0.18	$0.23	$0.35	$0.44
Price, Galv.....Each	.....	.12	.14	.17	.23	.30	.46	.57

Size.....Inches	2	2½	3	3½	4	5	6
Price, Black.....Each	$0.70	$1.25	$1.75	$2.65	$3.15	$5.70	$8.15
Price, Galv.....Each	.90	1.65	2.30	3.45	4.10	7.40	10.60

Crosses, Reducing—Fig. No. 1107

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3	4
Price, Black.....Each	.10	.12	.14	.20	.25	.38	.48	.77	1.40	1.95	3.45
Price, Galv.....Each	.....	.....	.18	.26	.33	.50	.62	1.00	1.85	2.55	4.50

Street or Service Tees, Straight—Fig. No. 1106

Size.....Inches	⅜	½	¾	1	1¼	1½	2
Price, Black.....Each	$0.09	$0.12	$0.15	$0.20	$0.30	$0.38	$0.60
Price, Galv.....Each	.12	.16	.20	.26	.39	.50	.78

Street or Service Tees, Reducing—Fig. No. 1106

Size.....Inches	1	1¼	1½	2
Price, Black.....Each	$0.22	$0.33	$0.42	$0.66
Price, Galv.....Each	.29	.43	.55	.86

45° Y-Branches, Straight—Fig. No. 1108

Size.....Inches	½	¾	1	1¼	1½
Price, Black.....Each	$0.14	$0.18	$0.25	$0.40	$0.57
Price, Galv.....Each	.18	.23	.33	.52	.75

Size.....Inches	2	2½	3	4
Price, Black.....Each	$0.85	$1.55	$2.80	$4.80
Price, Galv.....Each	1.10	2.00	3.65	6.25

45° Y-Branches, Reducing—Fig. No. 1108

Size.....Inches	2
Price, Black.....Each	$0.95
Price, Galv.....Each	1.25

All Fittings, other than Standard, take 25% extra charge to the above lists.
For list of sizes of Malleable Iron Fittings, see page 8.
In ordering, specify Black or Galvanized.
Order by Figure Number.

Malleable Iron Fittings

Standard Pattern—(Continued)



Side Outlet Elbow
Fig. No. 1109



Side Outlet Tee
Fig. No. 1113



Cap
Fig. No. 1124



Hex Bushing
Fig. No. 1127



Face Bushing
Fig. No. 1128

Side Outlet Elbows, Straight—Fig. No. 1109

Size ..... Inches	⅜	½	¾	1	1¼	1½	2
Price, Black ..... Each	$0.12	$0.14	$0.20	$0.26	$0.40	$0.50	$0.80
Price, Galv. ..... Each	.16	.18	.26	.34	.52	.65	1.05

Side Outlet of Four Way Tees, Straight—Fig. No. 1113

Size ..... Inches	⅜	½	¾	1	1¼	1½	2
Price, Black ..... Each	$0.16	$0.20	$0.26	$0.34	$0.52	$0.66	$1.05
Price, Galv. ..... Each	.21	.26	.34	.44	.68	.86	1.35

Caps—Fig. No. 1124

Size ..... Inches	⅛	¼	⅜	½	¾	1	1¼	1½
Price, Black ..... Each	$0.03	$0.03	$0.04	$0.05	$0.08	$0.10	$0.13	$0.18
Price, Galv. ..... Each	.04	.04	.05	.07	.10	.13	.17	.23

Size ..... Inches	2	2½	3	3½	4	5	6
Price, Black ..... Each	$0.25	$0.40	$0.60	$0.80	$1.10	$1.80	$2.70
Price, Galv. ..... Each	.33	.52	.78	1.05	1.45	2.35	3.50

‡Hex Bushings—Fig. No. 1127

Size ..... Inches	¼	⅜	½	¾	1	1¼	1½	2	2½
Price, Black ..... Each	$0.04	$0.04	$0.04	$0.05	$0.06	$0.07	$0.09	$0.14	$0.21
Price, Galv. ..... Each	.08	.08	.08	.10	.12	.14	.18	.28	.42

*Face Bushings—Fig. No. 1128

Size ..... Inches	¼	⅜	½	¾	1	1¼	1½	2
Price, Black ..... Each	$0.08	$0.08	$0.09	$0.11	$0.13	$0.17	$0.22	$0.32
Price, Galv. ..... Each	.12	.12	.14	.17	.20	.25	.33	.48

Size ..... Inches	2½	3	3½	4	5	6	8
Price, Black ..... Each	$0.48	$0.70	$1.20	$1.50	$2.60	$3.75	$9.00
Price, Galv. ..... Each	.72	1.05	1.80	2.25	3.90	5.60	.....

‡Hex Bushings reducing one size only are made of malleable iron. All other sizes are made of cast iron.

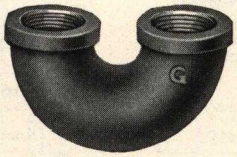
*Face Bushings, 1-inch and smaller are made of malleable iron; also 1¼-inch to 8-inch reducing one size only. All other sizes are made of cast iron.



Return Bend,
Close Pattern
Fig. No. 1117



Return Bend,
Medium Pattern
Fig. No. 1118



Return Bend,
Open Pattern
Fig. No. 1119



Coupling R. H.
Fig. No. 1121



Coupling R. and L.
Fig. No. 1122



Reducer
Fig. No. 1125

Return Bends, Close Pattern—Fig. No. 1117

Size ..... Inches	½	¾	1	1¼	1½	2
R. H. Black ..... Each	$0.16	$0.18	$0.24	$0.36	$0.49	$0.80
R. H. Galv. ..... Each	.21	.23	.31	.47	.64	1.05
R. & L., Black ..... Each	.18	.21	.28	.42	.56	.92
R. & L., Galv. ..... Each	.23	.27	.36	.55	.73	1.20
Center to Center ..... Inches	1	1¼	1½	1¾	2 3/16	2⅝

Return Bends, Medium Pattern—Fig. No. 1118

Size ..... Inches	½	¾	1	1¼	1½	2
R. H., Black ..... Each	$0.17	$0.20	$0.26	$0.40	$0.55	$0.88
R. H., Galv. ..... Each	.22	.26	.34	.52	.72	1.15
R. & L., Black ..... Each	.19	.23	.30	.46	.63	1.00
R. & L., Galv. ..... Each	.25	.30	.39	.60	.82	1.30
Center to Center ..... Inches	1¼	1½	1⅞	2¼	2½	3

Return Bends, Open Pattern—Fig. No. 1119

Size ..... Inches	½	¾	1	1¼	1½	2	2½	3
R. H., Black ..... Each	$0.19	$0.22	$0.29	$0.44	$0.62	$1.00	$1.45	$2.15
R. H., Galv. ..... Each	.25	.29	.38	.57	.80	1.30	1.90	2.80
R. and L., Black ..... Each	.22	.26	.34	.51	.70	1.15	1.65	2.45
R. and L., Galv. ..... Each	.29	.34	.44	.66	.90	1.50	2.15	3.20
Center to Center ..... Inches	1½	2	2½	3	3½	4	4½	5

Couplings, R. H.—Fig. No. 1121

Size ..... Inches	⅛	¼	⅜	½	¾	1	1¼
Price, Black ..... Each	$0.05	$0.05	$0.05	$0.06	$0.09	$0.12	$0.16
Price, Galv. ..... Each	.07	.07	.07	.08	.12	.16	.21

Size ..... Inches	1½	2	2½	3	3½	4
Price, Black ..... Each	$0.21	$0.34	$0.60	$0.85	$1.25	$1.50
Price, Galv. ..... Each	.27	.44	.78	1.10	1.60	1.95

Couplings, R. and L.—Fig. No. 1122

Size ..... Inches	¼	⅜	½	¾	1	1¼	1½	2
Price, Black ..... Each	$0.05	$0.05	$0.06	$0.09	$0.12	$0.16	$0.21	$0.34
Price, Galv. ..... Each	.07	.07	.08	.12	.16	.21	.27	.44

Reducers—Fig. No. 1125

Size ..... Inches	¼	⅜	½	¾	1	1¼
Price, Black ..... Each	$0.05	$0.05	$0.06	$0.09	$0.12	$0.15
Price, Galv. ..... Each	.07	.07	.08	.12	.16	.20

Size ..... Inches	1½	2	2½	3	3½	4
Price, Black ..... Each	$0.18	$0.28	$0.50	$0.75	$1.10	$1.40
Price, Galv. ..... Each	.23	.36	.65	1.00	1.45	1.85

All Fittings other than Standard, take 25% extra charge to the above lists.
For list of sizes of Malleable Iron Fittings, see page 8.
In ordering, specify Black or Galvanized.
Order by Figure Number.

Malleable Iron Fittings

Standard Pattern—(Continued)



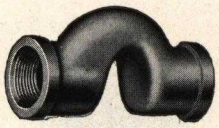
Waste Nut
Fig. No. 1133



Hex Locknut
Fig. No. 1134



Flanged Locknut
Fig. No. 1134-A



Cross-Over
Fig. No. 1129



Extension Piece
Fig. No. 1137

Waste Nuts—Fig. No. 1133

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2
Price, Black.....Each	$0.03	$0.04	$0.04	$0.05	$0.06	$0.11	$0.25	$0.41
Price, Galv.....Each	.04	.05	.05	.07	.08	.14	.33	.53

†Locknuts—Fig. Nos. 1134, 1134-A

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼
Price, Black.....Each	$0.02	$0.02½	$0.02½	$0.03	$0.04	$0.06	$0.08
Price, Galv.....Each	.03	.03½	.03½	.04	.05	.08	.10

Size.....Inches	1½	2	2½	3	3½	4
Price, Black.....Each	$0.10	$0.12	$0.30	$0.38	$0.43	$0.48
Price, Galv.....Each	.13	.16	.39	.50	.56	.62

Cross-Overs—Fig. No. 1129

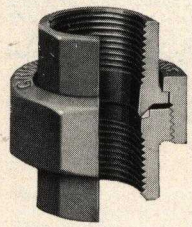
Size.....Inches	½	¾	1
Price, Black.....Each	$0.20	$0.30	$0.45
Price, Galv.....Each	.25	.40	.60
To Cross Pipe.....Inches	½	¾	1

Extension Pieces—Fig. No. 1137

Size.....Inches	⅜	½	¾	1	1¼	1½	2
Price, Black.....Each	$0.05	$0.07	$0.11	$0.16	$0.18	$0.23	$0.33
Price, Galv.....Each	.07	.09	.14	.21	.23	.30	.43

†Hex Locknuts, Malleable, sizes ⅛-inch to 4 inches. Flanged Locknuts, Malleable, sizes ⅜-inch to 2 inches. Flanged Locknuts 2½ inches and larger are made of cast iron.

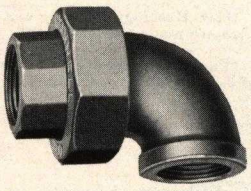
Malleable Iron Unions and Union Elbows



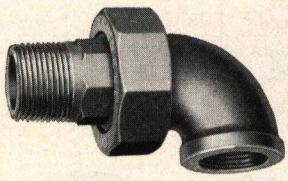
"Grinnell 300"
Fig. No. 459



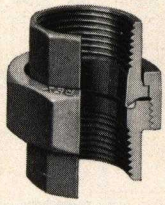
"Grinnell 300"
Male and Female
Fig. No. 551



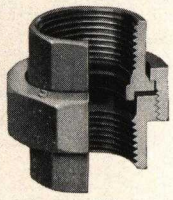
"Grinnell 300"
Female Union Elbow
Fig. No. 552



"Grinnell 300"
Male Union Elbow
Fig. No. 553



"Rex"
Fig. No. 463



"G"
Gasket Type
Fig. No. 470

"Grinnell 300" Unions—Fig. No. 459

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Black.....	$.30	$.30	$.40	$.50	$.60	$ .80	$1.20	$1.60	$2.00	$3.20	$4.80
Galv.....	.45	.45	.60	.75	.90	1.20	1.80	2.40	3.00	4.80	7.20
End to End....	1¼	1⅝	1⅞	2	2¼	2½	2 11/16	2 15/16	3¼	3⅞	4¼

"Grinnell 300" Male and Female Unions—Fig. No. 551

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Black.....	$0.38	$0.50	$0.62	$0.75	$1.00	$1.50	$2.00	$2.50	$4.00	$6.00
Galv.....	.53	.70	.87	1.05	1.40	2.10	2.80	3.50	5.60	8.40
End to End....	.....	.....	.....	3	3¼	3½	3⅞	4⅛	.....	.....

"Grinnell 300" Female Union Elbows—Fig. No. 552

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Black.....	$0.45	$0.60	$0.75	$0.90	$1.20	$1.80	$2.40	$3.00	$4.80	$7.50
Galv.....	.60	.80	1.00	1.20	1.60	2.40	3.20	4.00	6.40	10.00
C. to E. Elbow..	.....	15/16	1⅛	1 3/16	1½	1 11/16	1⅞	2 5/16	.....	.....
C. to E. Union..	.....	2 1/16	2¼	2⅝	3	3⅜	3¾	4 7/16	.....	.....

"Grinnell 300" Male Union Elbows—Fig. No. 553

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½
Black.....	$0.45	$0.60	$0.75	$0.90	$1.20	$1.80	$2.40	$3.00	$4.80
Galv.....	.60	.80	1.00	1.20	1.60	2.40	3.20	4.00	6.40
C. to E. Elbow.....	.....	.....	.....	1 3/16	1½	1 11/16	1⅞	2 5/16	.....
C. to E. Union.....	.....	.....	.....	3⅜	3¾	4 5/16	4⅝	5¼	.....

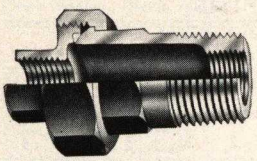
"Rex" Unions—Fig. No. 463

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Black.....	$0.30	$0.40	$0.50	$0.60	$0.80	$1.20	$1.60	$2.00	$3.20	$4.80
Galv.....	.45	.60	.75	.90	1.20	1.80	2.40	3.00	4.80	7.20
End to End....	1 1/16	1⅝	1¾	2	2 3/16	2⅜	2 9/16	2⅞	3⅛	3 5/16

"G" Gasket Type Unions—Fig. No. 470

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Black.....	$0.18	$0.20	$0.22	$0.27	$0.33	$0.46	$0.58	$0.75	$1.55	$2.10
Galv.....	.27	.30	.33	.40	.50	.70	.90	1.15	2.35	3.15
End to End....	1⅜	1½	1⅝	1⅞	2 1/16	2 5/16	2 11/16	2¾	3⅛	3 5/16

All "Grinnell 300" Unions and Union Fittings are recommended for 300 lbs. working steam pressure, "Rex" and Gasket Type Unions recommended for 150 lbs. working steam pressure.

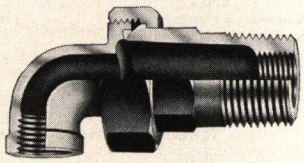


Boiler Coupling with Union
Ground Joint Type
Fig. No. 1153

Boiler Couplings and Elbows—Fig. Nos. 1153, 1154

Size.....Inches	Female Male ¾x¾x1	Female Male ¾x½x1	Female Male ½x½x1
Price, Galv.....Each	$0.75	$0.75	$0.60

Boiler Fittings are read as follows:
First, the female end; second, the internal thread of the male end; third, the external thread of the male end.



Boiler Elbow with Union
Ground Joint Type
Fig. No. 1154

All Fittings, other than Standard, take 25% extra charge to the above lists.
For list of sizes of Malleable Iron Fittings, see page 8.
In ordering, specify Black or Galvanized.
Order by Figure Number.

Malleable Iron Fittings

List of Sizes

90° Elbows

* ⅛	*1½
* ¼	*1½
* ¼ x ⅛	*1½x1¼
* ⅜	*1½x1
* ⅜ x ¼	*1½x ¾
* ⅜ x ⅛	*2
* ½	*2 x1½
* ½ x ⅜	*2 x1¼
* ½ x ¼	*2 x1
* ¾	*2½
* ¾ x ½	*2½x2
* ¾ x ⅜	*2½x1½
*1	*3
*1 x ¾	*3 x2½
*1 x ½	*3 x2
*1 x ⅜	*3½
*1¼	*3½x3
*1¼x1	*4
*1¼ x ¾	*4 x3
*1¼ x ½	*5
	*6

45° Elbows

* ⅛	*2
* ¼	*2½
* ⅜	*3
* ½	*3½
* ¾	*4
*1	*5
*1¼	*6
*1½	.....

90° R. and L. Elbows

* ¼	*1
* ⅜	*1¼
* ½	*1½
* ¾	*2

90° Street Elbows

* ⅛	*1¼x1
* ¼	*1½
* ⅜	*1½x1¼
* ½	*2
* ¾	*2 x1½
* ¾ x ½	*2½
*1	*3
*1 x ¾	*4
*1¼	.....

45° Street Elbows

* ⅜	*1¼
* ½	*1½
* ¾	*2
*1	.....

Side Outlet Elbows

* ⅜	*1¼
* ½	*1½
* ¾	*2
*1	.....

Tees

* ⅛x ⅛x ⅛	*1 x1 x ¼	*1½x1¼x1	*2½x2½x ¾
	*1 x ¾x1	*1½x1¼x ¾	*2½x2 x2½
* ¼x ¼x ¼	*1 x ¾x ¾	*1½x1 x1½	*2½x2 x2
* ¼x ¼x ⅛	*1 x ¾x ½	*1½x1 x1¼	*2½x1½x2½
	*1 x ¾x ⅜	*1½x1 x1	*2 x2 x2½
* ⅜x ⅜x ⅜	*1 x ½x1	*1½x1 x ¾	
* ⅜x ⅜x ¼	*1 x ½x ¾	*1½x ¾x1½	*3 x3 x3
* ⅜x ⅜x ⅛	*1 x ½x ½	*1½x ¾x ¾	*3 x3 x2½
* ¼x ¼x ⅜	*1 x ⅜x1	*1½x ½x1½	*3 x3 x2
	* ¾x ¾x1	*1¼x1¼x1½	*3 x3 x1½
* ½x ½x ½	* ¾x ½x1	*1 x1 x1½	*3 x3 x1¼
* ½x ½x ⅜			*3 x3 x1
* ½x ½x ¼	*1¼x1¼x1¼	*2 x2 x2	*3 x2½x3
* ½x ⅜x ½	*1¼x1¼x1	*2 x2 x1½	*3 x2 x3
* ½x ⅜x ⅜	*1¼x1¼x ¾	*2 x2 x1¼	*3 x2 x2
* ½x ¼x ½	*1¼x1¼x ½	*2 x2 x1	*2½x2½x3
* ⅜x ⅜x ½	*1¼x1¼x ⅜	*2 x2 x ¾	
	*1¼x1 x1¼	*2 x2 x ½	*3½x3½x3½
* ¾x ¾x ¾	*1¼x1 x1	*2 x2 x ⅜	*3½x3½x3
* ¾x ¾x ½	*1¼x1 x ¾	*2 x1½x2	*3½x3½x2½
* ¾x ¾x ⅜	*1¼x1 x ½	*2 x1½x1½	
* ¾x ¾x ¼	*1¼x ¾x1¼	*2 x1½x1¼	*4 x4 x4
* ¾x ½x ¾	*1¼x ¾x1	*2 x1½x1	*4 x4 x3
* ¾x ½x ½	*1¼x ¾x ¾	*2 x1¼x2	*4 x4 x2½
* ¾x ½x ⅜	*1¼x ½x1¼	*2 x1¼x1½	*4 x4 x2
* ¾x ⅜x ¾	*1¼x ⅜x1¼	*2 x1¼x1¼	*4 x4 x1½
* ¾x ⅜x ½	*1 x1 x1¼	*2 x1 x2	
* ¾x ⅜x ⅜		*2 x ¾x2	
* ½x ½x ¾	*1½x1½x1½	*1½x1½x2	*5 x5 x5
* ½x ⅜x ¾	*1½x1½x1¼	*1¼x1¼x2	*5 x5 x3
* ⅜x ⅜x ¾	*1½x1½x1		
	*1½x1½x ¾	*2½x2½x2½	*6 x6 x6
*1 x1 x1	*1½x1½x ½	*2½x2½x2	*6 x6 x4
*1 x1 x ¾	*1½x1½x ⅜	*2½x2½x1½	*6 x6 x3
*1 x1 x ½	*1½x1¼x1½	*2½x2½x1¼	*6 x6 x2½
*1 x1 x ⅜	*1½x1¼x1¼	*2½x2½x1	*6 x6 x2

Crosses

* ¼x ¼x ¼x ¼	*1¼x1¼x1 x1	*2½x2½x2½x2½
* ⅜x ⅜x ⅜x ⅜	*1¼x1¼x ¾x ¾	*2½x2½x2 x2
* ½x ½x ½x ½	*1¼x1¼x ½x ½	
* ½x ½x ⅜x ⅜		*3 x3 x3 x3
	*1½x1½x1½x1½	*3 x3 x2 x2
* ¾x ¾x ¾x ¾	*1½x1½x1¼x1¼	
* ¾x ¾x ½x ½	*1½x1½x1 x1	*3½x3½x3½x3½
* ¾x ¾x ⅜x ⅜	*1½x1½x ¾x ¾	
		*4 x4 x4 x4
*1 x1 x1 x1	*2 x2 x2 x2	*4 x4 x2 x2
*1 x1 x ¾x ¾	*2 x2 x1½x1½	
*1 x1 x ½x ½	*2 x2 x1¼x1¼	*5 x5 x5 x5
*1 x1 x ⅜x ⅜	*2 x2 x1 x1	
*1¼x1¼x1¼x1¼	*2 x2 x ¾x ¾	*6 x6 x6 x6

Side Outlet or Four Way Tees

* ⅜	* 1	* 2
* ½	* 1¼	.....
* ¾	* 1½	.....

Street or Service Tees

* ⅜x ⅜x ⅜	*1 x1 x1	*1¼x1 x1¼	*1½x1¼x1½
* ½x ½x ½	*1 x1 x ¾	*1¼x ¾x1¼	*2 x2 x2
* ¾x ¾x ¾	*1¼x1¼x1¼	*1½x1½x1½	*2 x1½x2

Caps

* ⅛	*2
* ¼	*2½
* ⅜	*3
* ½	*3½
* ¾	*4
*1	*5
*1¼	*6
*1½	.....

45° Y-Branches

* ½x ½x ½	*2 x2 x1½
* ¾x ¾x ¾	*2 x1½x2
*1 x1 x1	*2 x1½x1½
*1¼x1¼x1¼	*2½x2½x2½
*1½x1½x1½	*3 x3 x3
*2 x2 x2	*4 x4 x4

Couplings, Right and Left

* ¼	* 1
* ⅜	* 1¼
* ½	* 1½
* ¾	* 2

†Locknuts

* ⅛	* 1½
* ¼	* 2
* ⅜	* 2½
* ½	* 3
* ¾	* 3½
* 1	* 4
* 1¼	.....

Extension Pieces

* ⅜	* 1¼
* ½	* 1½
* ¾	* 2
* 1	.....

Waste Nuts

* ¼	* 1
* ⅜	* 1¼
* ½	* 1½
* ¾	* 2

Reducers

* ¼x ⅛	*2 x1¼
* ⅜x ¼	*2 x1
* ⅜x ⅛	*2 x ¾
* ½x ⅜	*2 x ½
* ½x ¼	*2 x ⅜
* ½x ⅛	*2½x2
* ¾x ½	*2½x1½
* ¾x ⅜	*2½x1¼
* ¾x ¼	*2½x1
*1 x ¾	*3 x2½
*1 x ½	*3 x2
*1 x ⅜	*3 x1½
*1 x ¼	*3 x1¼
*1¼x1	*3 x1
*1¼x ¾	*3½x3
*1¼x ½	*3½x2½
*1¼x ⅜	*3½x2
*1½x1¼	*4 x3½
*1½x1	*4 x3
*1½x ¾	*4 x2½
*1½x ½	*4 x2
*2 x1½	*4 x1

Couplings, Right Hand

* ⅛	*1½
* ¼	*2
* ⅜	*2½
* ½	*3
* ¾	*3½
*1	*4
*1¼	.....

Return Bends, Close Pattern

* ½	*1¼
* ¾	*1½
*1	*2

Return Bends, Medium Pattern

* ½	*1¼
* ¾	*1½
*1	*2

Return Bends, Open Pattern

* ½	*1½
* ¾	*2
*1	*2½
*1¼	*3

Sizes marked thus * are also carried galvanized.

All fittings, other than Standard, take 25 per cent extra charge.

When ordering Reducing Street Elbows, the first size mentioned denotes the female end.

Reducing Service Tees are read as follows: Female Run, Male Run, Outlet.

†Hex Locknuts, Malleable, sizes ⅛-inch to 4-inches. Flanged Locknuts, Malleable, sizes ¾-inch to 2-inches. Flanged Locknuts 2½-inches and larger are made of cast iron.

Extra Heavy Cast Iron Fittings

For 250 Lbs. Steam Pressure



Elbow
Fig. No. 421



Reducing Elbow
Fig. No. 422



45-Degree Elbow
Fig. No. 424



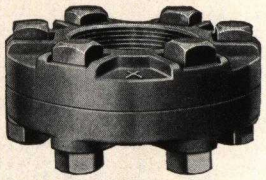
Tee
Fig. No. 425



Cross
Fig. No. 427



Y or Lateral
Fig. No. 431



Extra Heavy Flange Union
Fig. No. 488

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12
Elbows.....Each	$0.20	$0.20	$0.25	$0.30	$0.35	$0.45	$0.60	$0.75	$1.25	$2.00	$ 2.75	$ 3.50	$ 5.50	$ 8.00	$17.00	$28.00	$40.00
Elbows, Reducing.....Each	.....	.35	.35	.40	.45	.55	.75	.95	1.55	2.50	3.40	4.40	6.80	10.00	21.00	35.00	50.00
Elbows, 45-Degree....Each	.30	.30	.35	.40	.44	.55	.70	.90	1.50	2.50	3.50	4.50	6.75	9.75	21.00	34.00	48.00
Tees.....Each	.35	.35	.40	.45	.55	.70	.90	1.15	1.80	3.00	4.25	5.50	8.25	12.00	25.00	42.00	60.00
Tees, Reducing.....Each	.....	.55	.55	.60	.70	.90	1.15	1.40	2.25	3.75	5.30	6.85	10.25	15.00	31.00	52.00	75.00
Crosses.....Each	.60	.60	.60	.65	.70	.90	1.20	1.50	2.50	4.00	5.50	7.00	11.00	16.00	34.00	56.00	80.00
Crosses, Reducing.....Each	.....	.80	.80	.85	.90	1.15	1.50	1.85	3.15	5.00	6.85	8.75	13.75	20.00	42.00	70.00	100.00
Y's.....Each	.....	.....	.90	1.10	1.10	1.35	1.80	2.25	3.75	6.00	8.25	11.00	16.50	24.00	50.00	84.00	120.00
Y's, Reducing.....Each	.....	.....	.....	.....	1.38	1.75	2.25	2.88	4.50	7.50	10.63	13.75	20.63	30.00	62.50	105.00	150.00

Extra Heavy Flange Unions—Fig. No. 488

Size.....Inches	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12
Price.....Each	$0.70	$0.70	$0.80	$1.00	$1.15	$1.50	$1.90	$2.25	$2.70	$3.15	$4.75	$6.00	$10.50	$17.25	$24.00

Cast Iron Flanges

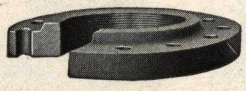


Fig. No. 1011



Fig. No. 1018



Fig. No. 1025



Fig. No. 1021

Standard Flanges

Sizes.....	2	2½	3	3½	4
Diameter.....Inches	6	7	7½	8½	9
Companion, Faced.....Each	$0.75	$0.85	$0.95	$1.20	$1.35
Companion, Faced and Drilled.Each	1.00	1.10	1.25	1.55	1.80
Blind, Faced.....Each	1.15	1.30	1.40	1.80	2.00
Blind, Faced and Drilled.....Each	1.40	1.55	1.70	2.15	2.45

Sizes.....	5	6	8	10	12
Diameter.....Inches	10	11	13½	16	19
Companion, Faced.....Each	$1.60	$2.00	$3.10	$4.50	$6.50
Companion, Faced and Drilled.Each	2.05	2.50	3.80	5.50	7.65
Blind, Faced.....Each	2.40	3.00	4.60	6.75	9.75
Blind, Faced and Drilled.....Each	2.85	3.50	5.30	7.75	10.90

Sizes.....	14	16	18	20	24
Diameter.....Inches	21	23½	25	27½	32
Companion, Faced.....Each	$ 9.00	$13.50	$16.00	$19.00	$27.00
Companion, Faced and Drilled.Each	10.35	15.30	18.00	21.50	30.50
Blind, Faced.....Each	13.50	20.00	24.00	28.00	40.00
Blind, Faced and Drilled.....Each	14.85	21.80	26.00	30.50	43.50

When not otherwise specified, these Flanges will be furnished Faced and Drilled.

Extra Heavy Flanges

Sizes.....	2	2½	3	3½	4
Diameter.....Inches	6½	7½	8¼	9	10
Companion, Faced only.....Each	$1.25	$1.40	$1.60	$2.00	$2.25
Companion, Faced and Drilled.Each	1.60	1.75	2.05	2.55	2.95
Blind, Faced.....Each	1.90	2.10	2.40	3.00	3.35
Blind, Faced and Drilled.....Each	2.25	2.45	2.85	3.55	4.05

Sizes.....	5	6	8	10	12
Diameter.....Inches	11	12½	15	17½	20½
Companion, Faced only.....Each	$2.65	$3.30	$5.10	$7.40	$10.75
Companion, Faced and Drilled.Each	3.35	4.05	6.15	8.90	12.50
Blind, Faced.....Each	4.00	5.00	7.65	11.00	16.00
Blind, Faced and Drilled.....Each	4.70	5.75	8.70	12.50	17.75

Sizes.....	14	16	18	20	24
Diameter.....Inches	23	25½	28	30½	36
Companion, Faced only.....Each	$15.00	$22.25	$26.00	$31.00	$45.00
Companion, Faced and Drilled.Each	17.00	25.00	29.00	35.00	50.00
Blind, Faced.....Each	22.50	33.50	39.00	46.00	67.00
Blind, Faced and Drilled.....Each	24.50	36.25	42.00	50.00	72.00

When not otherwise specified, these Flanges will be furnished Faced and Drilled.

Flanges with Tongue and Groove are made to order at special prices.

Reducing Standard Flange List

Size O. D.....Inches	7	7½	8½	9	10	11	13½
Faced.....Each	$ 1.45	$ 1.55	$ 2.00	$ 2.20	$ 2.65	$ 3.30	$ 5.10
Faced and Drilled....Each	1.70	1.85	2.35	2.65	3.10	3.80	5.80

Size O. D.....Inches	16	19	21	23½	25	27½	32
Faced.....Each	$ 7.45	$10.75	$15.00	$22.00	$26.50	$31.00	$44.00
Faced and Drilled....Each	8.45	11.90	16.35	23.80	28.50	33.50	47.50

Reducing X. H. Flange List

Size O. D.....Inches	7½	8¼	9	10	11	12½	15
Faced.....Each	$ 2.30	$ 2.65	$ 3.30	$ 3.70	$ 4.40	$ 5.50	$ 8.40
Faced and Drilled....Each	2.65	3.10	3.85	4.40	5.10	6.25	9.45

Size O. D.....Inches	17½	20½	23	25½	28	30½	36
Faced.....Each	$12.00	$17.50	$25.00	$37.00	$43.00	$51.00	$74.00
Faced and Drilled....Each	13.50	19.25	27.00	39.75	46.00	55.00	79.00

Cast Iron Drain Tees

Standard—For 150 Lbs. Water Pressure. Extra Heavy—For 250 Lbs. Water Pressure



Size.....Inches	2½	3	3½	4	5	6	8
Standard—Faced and Drilled, Flange One End, Fig. No. 321.....Each	$2.83	$ 3.50	$ 4.25	$ 5.00	$ 7.15	$ 8.60	$17.75
Standard—Faced and Drilled, Flanges Two Ends, Fig. No. 322.....Each	4.83	5.75	6.75	8.00	10.80	12.60	24.25
Extra Heavy—Faced and Drilled, Flange One End, Fig. No. 318.....Each	5.65	7.00	8.50	10.00	14.30	17.20	35.50
Extra Heavy—Faced and Drilled, Flanges Two Ends, Fig. No. 319....Each	9.65	11.50	13.50	16.00	21.60	25.20	48.50

Long Turn Fittings

For 150 Lbs. Water Pressure



Fig. No. 301



Fig. No. 302



Fig. No. 303



L. T. Bossed Elbow



Fig. No. 310
Long Turn Cross

Long Turn Elbows

Size, Inches	Screw	Reducing Screw	Faced and Drilled	
			Flange, One End	Flanges, Both Ends
¾	$0.32	$0.48	.....	.....
1	.32	.48	.....	.....
1¼	.40	.60	.....	.....
1½	.55	.83	.....	.....
2	.80	1.20	.....	.....
2½	1.20	1.80	$5.50	$6.75
3	2.25	3.38	6.00	7.50
3½	3.25	4.88	6.50	8.50
4	3.50	5.25	7.50	10.00
5	6.50	9.75	10.00	12.50
6	8.75	13.13	14.00	17.50

Reducing Long Turn Elbows made to order by bushing in the sand.

Long Turn Bossed Elbows

½ to 1½-inch Screw or 1½-inch Solid Bosses on 2½, 3, 3½-inch Elbows.
½ to 2-inch Screw or 2-inch Solid Bosses on 4, 5, 6-inch Elbows.
2-inch Slip Bosses on 3 and 4-inch Elbows.
2½-inch Slip Bosses on 5 and 6-inch Elbows.
Add to List Prices on L. T. Elbows; $1.00 for Solid Bosses; $1.50 for Screw or Slip Bosses.
Note: Solid Bosses are cored for ½-inch pipe tap.

Long Turn Crosses

Size.....Inches	2½	3	3½	4	5	6
Faced and Drilled, Flange One End.....	$12.50	$13.50	$15.00	$17.00	$22.00	$30.00



Fig. No. 304



Fig. No. 305

Long Turn Tees

Size, Inches	Screw	Reducing Screw	Faced and Drilled	
			Flange, One or Two Ends	Flange, Three Ends
1½	$1.10	.....	.....	.....
2	1.60	.....	.....	.....
2½	2.40	$ 3.60	$ 9.00	$10.00
3	4.50	6.75	10.00	11.50
3½	6.50	9.75	11.00	13.00
4	7.00	10.50	12.00	15.00
5	13.00	19.50	15.00	18.00
6	17.50	26.25	22.00	26.00



Fig. No. 316



Fig. No. 317

Teapot Tees

Double Branch Elbows

Size, Inches	Screw	Reducing Screw	Size, Inches	Screw	Reducing Screw
¾	$ .48	$ .72	1	$ .64	$ .96
1	.48	.72	1¼	.80	1.20
1¼	.60	.90	1½	1.10	1.65
1½	.82	1.23	2	1.60	2.40
2	1.20	1.80	2½	2.40	3.60
2½	1.80	2.70	3	4.50	6.75
3	3.40	5.10	3½	6.50	9.75
3½	4.90	7.35	4	7.00	10.50
4	5.25	7.88			
5	9.75	14.63			
6	13.25	19.88			



Fig. No.
1335

Grinnell Approved Indicator Post

Approved by the Underwriters Laboratories. Designed for use with water valves connected with fire service in mill and factory yards. Provides means for operating an underground valve. Indicates whether open or closed. Used with non-rising spindle gate valves, opening either to the right or left, requiring from 8 to 41 turns to open. Range includes 4, 6, 8, 10 and 12-inch valves. Indicator post is operated with a wrench which acts as a locking bar.

Price List

Indicator post only, 3-foot to 6-foot trench, each.....	$40.00
Extra for each 6 inches over 6-foot trench.....	2.00
Extra Sealing Wrenches.....	2.00

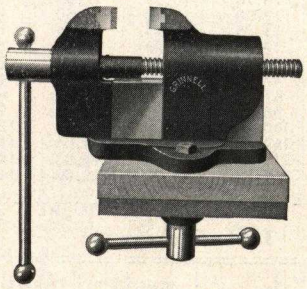


Fig. No. 1621

Grinnell Pipe Vise

The jaws are easy to renew and are held in place by screws; also it is grooved into the frame and doweled. Operating screw is strong. All parts interchangeable. Five-inch jaw for pipe ⅛ to 6-inch. Each $22.50. New jaws per pair, $5.00.

This Vise can also be furnished with long shank on operating screw at an additional net charge of $5.00.

Grinnell Iron Body Check Valves

For 125 Lbs. Steam Pressure or 150 Lbs. Water Pressure



Fig. No. 1364—Flanged
Fig. No. 1365—Screwed
Fig. No. 1366—Bell Ends

List Prices

Size, Inches	Screw Ends	Flanged Ends	Bell Ends
4	$20.00	$24.00	$27.00
5	30.00	34.00	.....
6	36.00	41.00	45.00
8	.....	75.00	82.50
10	.....	115.00	125.00
12	.....	168.00	.....

By-pass complete for 6, 8, 10 and 12-inch sizes; add $20.00 to list. By-pass not furnished on 4 or 5-inch valves.

Standard Cast Iron Flanged Fittings

For 125 Lbs. Steam Pressure



Elbow
Fig. No. 801



45 Degree Elbow
Fig. No. 802



Taper Reducing Elbow
Fig. No. 803



Long Radius Elbow
Fig. No. 804

Elbows			45-Degree Elbows			Taper Reducing Elbows						Long Radius Elbows		
Size, Inches	With Flanges Faced	With Flanges Faced and Drilled	Size, Inches	With Flanges Faced	With Flanges Faced and Drilled	Size, Inches	With Flanges Faced	With Flanges Faced and Drilled	Size, Inches	With Flanges Faced	With Flanges Faced and Drilled	Size, Inches	With Flanges Faced	With Flanges Faced and Drilled
2	$ 3.00	$ 3.60	2	$ 3.30	$ 3.90	3 x1½	$ 6.90	$ 7.60	6x 5	$15.25	$16.55	2	$ 5.00	$ 5.90
2½	3.15	3.75	2½	3.50	4.10	3 x2	6.90	7.60	8x 3½	24.00	25.60	2½	5.25	6.15
3	3.45	4.15	3	3.80	4.50	3 x2½	6.90	7.60	8x 4	24.00	25.60	3	5.75	6.85
3½	4.05	4.90	3½	4.50	5.35	3½x2½	8.10	8.95	8x 5	24.00	25.60	3½	6.75	8.00
4	4.50	5.50	4	5.00	6.00	3½x3	8.10	8.95	8x 6	24.00	25.60	4	7.50	9.00
5	6.25	7.25	5	6.90	7.90	4 x2	9.00	10.00	10x 5	38.00	40.70	5	10.50	12.00
6	7.60	8.90	6	8.35	9.65	4 x2½	9.00	10.00	10x 6	38.00	40.70	6	12.65	14.60
8	12.00	13.60	8	12.60	14.20	4 x3	9.00	10.00	10x 8	38.00	40.70	8	20.00	22.40
10	19.00	21.70	10	20.00	22.70	5 x2½	12.50	13.50	12x 6	56.00	59.00	10	31.50	35.50
12	28.00	31.00	12	29.50	32.50	5 x3	12.50	13.50	12x 8	56.00	59.00	12	46.50	51.00
14	41.50	45.25	14	41.50	45.25	5 x4	12.50	13.50	12x10	56.00	59.00	14	69.00	74.50
16	54.50	59.50	16	54.50	59.50	6 x2½	15.25	16.55	14x10	70.00	73.75	16	91.00	98.50
18	71.00	77.00	18	71.00	77.00	6 x3	15.25	16.55	14x12	70.00	73.75	18	118.00	127.00
20	90.00	97.00	20	90.00	97.00	6 x3½	15.25	16.55	16x12	90.00	95.00	20	150.00	160.00
24	140.00	150.00	24	140.00	150.00	6 x4	15.25	16.55	16x14	90.00	95.00	.....	.....	.....

When not otherwise specified, Flanged Fittings will be furnished Faced and Drilled.



Tee
Fig. No. 811



Tee Reduced on Side



Tee Reduced on End
Fig. No. 812



Cross
Fig. No. 821



Base Elbow
Fig. No. 805

Size, Inches	Tees				Laterals				Crosses				Base Elbows	
	Straight		Reducing		Straight		Reducing		Straight		Reducing			
	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled Except Base Flg.
2	$ 4.35	$ 5.25	$ 5.00	$ 5.90	$ 6.75	$ 7.95	$ 7.75	$ 8.95	$ 6.75	$ 7.95	$ 7.75	$ 8.95	.....	.....
2½	4.55	5.45	5.25	6.15	6.95	8.15	8.00	9.20	6.95	8.15	8.00	9.20	.....	.....
3	5.00	6.10	5.75	6.85	7.65	9.05	8.75	10.15	7.65	9.05	8.75	10.15	.....	.....
3½	5.85	7.10	6.75	8.00	9.00	10.70	10.35	12.05	9.00	10.70	10.35	12.05	.....	.....
4	6.50	8.00	7.50	9.00	10.00	12.00	11.50	13.50	10.00	12.00	11.50	13.50	$ 9.00	$10.00
5	9.10	10.60	10.50	12.00	13.75	15.75	15.75	17.75	13.75	15.75	15.75	17.75	12.50	13.50
6	11.00	12.95	12.65	14.60	16.75	19.25	19.25	21.75	16.75	19.25	19.25	21.75	15.25	16.55
8	17.40	19.80	20.00	22.40	26.50	29.75	30.50	33.75	26.50	29.75	30.50	33.75	24.00	25.60
10	27.50	31.50	31.50	35.50	42.00	47.50	48.00	53.50	42.00	47.50	48.00	53.50	38.00	40.70
12	40.50	45.00	46.50	51.00	61.50	67.50	71.00	77.00	61.50	67.50	71.00	77.00	56.00	59.00
14	60.00	65.50	69.00	74.50	91.00	98.50	105.00	112.50	91.00	98.50	105.00	112.50	70.00	73.75
16	79.00	86.50	91.00	98.50	120.00	130.00	138.00	148.00	120.00	130.00	138.00	148.00	90.00	95.00
18	103.00	112.00	118.00	127.00	157.00	169.00	180.00	192.00	157.00	169.00	180.00	192.00	105.00	111.00
20	130.00	140.00	150.00	160.00	198.00	212.00	228.00	242.00	198.00	212.00	228.00	242.00	.....	.....
24	203.00	218.00	233.00	248.00	310.00	330.00	355.00	375.00	310.00	330.00	355.00	375.00	.....	.....

Taper Reducers

Size, Inches	With Flanges Faced	With Flanges Faced and Drilled	Size, Inches	With Flanges Faced	With Flanges Faced and Drilled	Size, Inches	With Flanges Faced	With Flanges Faced and Drilled	Size, Inches	With Flanges Faced	With Flanges Faced and Drilled	Size, Inches	With Flanges Faced	With Flanges Faced and Drilled
2½x2	$ 6.90	$ 7.60	5 x3	$12.50	$13.50	8x 5	$24.00	$25.60	14x 6	$70.00	$73.75	18x14	$105.00	$111.00
3 x2	6.90	7.60	5 x3½	12.50	13.50	8x 6	24.00	25.60	14x 8	70.00	73.75	18x16	105.00	111.00
3½x2½	8.10	8.95	5 x4	12.50	13.50	10x 4	38.00	40.70	14x10	70.00	73.75	20x12	120.00	127.00
3½x3	8.10	8.95	6 x3	15.25	16.55	10x 5	38.00	40.70	14x12	70.00	73.75	20x14	120.00	127.00
4 x2	9.00	10.00	6 x3½	15.25	16.55	10x 6	38.00	40.70	16x 8	90.00	95.00	20x16	120.00	127.00
4 x2½	9.00	10.00	6 x4	15.25	16.55	10x 8	38.00	40.70	16x10	90.00	95.00	20x18	120.00	127.00
4 x3	9.00	10.00	6 x5	15.25	16.55	12x 5	56.00	59.00	16x12	90.00	95.00	24x16	190.00	200.00
4 x3½	9.00	10.00	8 x3	24.00	25.60	12x 6	56.00	59.00	16x14	90.00	95.00	24x18	190.00	200.00
5 x2	12.50	13.50	8 x3½	24.00	25.60	12x 8	56.00	59.00	18x10	105.00	111.00	24x20	190.00	200.00
5 x2½	12.50	13.50	8 x4	24.00	25.60	12x10	56.00	59.00	18x12	105.00	111.00	.....	.....	.....



Taper Reducer
Fig. No. 825

Extra Heavy Cast Iron Flanged Fittings

For 250 Lbs. Steam Pressure



Elbow
Fig. No. 831



45 Degree Elbow
Fig. No. 832



Taper Reducing Elbow
Fig. No. 833



Long Radius Elbow
Fig. No. 834

Elbows			45-Degree Elbows			Taper Reducing Elbows						Long Radius Elbows		
Size, Inches	With Flanges Faced	With Flanges Faced and Drilled	Size, Inches	With Flanges Faced	With Flanges Faced and Drilled	Size, Inches	With Flanges Faced	With Flanges Faced and Drilled	Size, Inches	With Flanges Faced	With Flanges Faced and Drilled	Size, Inches	With Flanges Faced	With Flanges Faced and Drilled
2	$ 4.50	$ 5.40	2	$ 5.00	$ 5.90	2 x1½	$ 9.00	$ 9.90	6x 4	$22.75	$24.75	2	$ 7.50	$ 8.85
2½	4.75	5.65	2½	5.25	6.15	2½x1½	9.50	10.40	6x 5	22.75	24.75	2½	8.00	9.35
3	5.15	6.25	3	5.65	6.75	2½x2	9.50	10.40	8x 4	36.00	38.50	3	8.60	10.25
3½	6.10	7.35	3½	6.75	8.00	3 x1½	10.25	11.35	8x 5	36.00	38.50	3½	10.25	12.15
4	6.75	8.25	4	7.50	9.00	3 x2	10.25	11.35	8x 6	36.00	38.50	4	11.25	13.50
5	9.35	10.85	5	10.35	11.85	3 x2½	10.25	11.35	10x 5	57.00	61.00	5	15.50	17.75
6	11.40	13.40	6	12.50	14.50	3½x2½	12.25	13.50	10x 6	57.00	61.00	6	19.00	22.00
8	18.00	20.50	8	19.00	21.50	3½x3	12.25	13.50	10x 8	57.00	61.00	8	30.00	33.75
10	28.50	32.50	10	30.00	34.00	4 x2	13.50	15.00	12x 8	84.00	88.50	10	47.75	53.75
12	42.00	46.50	12	44.00	48.50	4 x2½	13.50	15.00	12x10	84.00	88.50	12	70.00	76.75
14	62.00	67.50	14	62.00	67.50	4 x3	13.50	15.00	14x10	105.00	110.50	14	103.50	111.75
16	82.00	90.00	16	82.00	90.00	5 x2½	18.75	20.25	14x12	105.00	110.50	16	137.00	149.00
18	106.00	115.00	18	106.00	115.00	5 x3	18.75	20.25	16x10	135.00	143.00	18	177.00	191.00
20	135.00	145.00	20	135.00	145.00	5 x4	18.75	20.25	16x12	135.00	143.00	20	225.00	240.00
24	210.00	225.00	24	210.00	225.00	6 x3	22.75	24.75	16x14	135.00	143.00	.....	.....	.....
.....	.....	.....	.....	.....	.....	6 x3½	22.75	24.75	.....	.....	.....	.....	.....	.....

When not otherwise specified, Flanged Fittings will be furnished Faced and Drilled.



Tee
Fig. No. 841



Tee Reduced on Side
Fig. No. 842



Tee Reduced on End
Fig. No. 842



Cross
Fig. No. 851



Base Elbow
Fig. No. 835

Size, Inches	Tees				Laterals				Crosses				Base Elbows	
	Straight		Reducing		Straight		Reducing		Straight		Reducing			
	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled Except Base Flg.
2	$ 6.50	$ 7.85	$ 7.50	$ 8.85	$10.00	$11.80	.....	.....	$10.00	$11.80	$11.50	$13.30	.....	.....
2½	6.90	8.25	8.00	9.35	10.50	12.30	$12.00	$13.80	10.50	12.30	12.00	13.80	.....	.....
3	7.50	9.15	8.60	10.25	11.50	13.75	13.25	15.50	11.50	13.75	13.25	15.50	.....	.....
3½	8.90	10.80	10.25	12.15	13.50	16.00	15.50	18.00	13.50	16.00	15.50	18.00	.....	.....
4	9.75	12.00	11.25	13.50	15.00	18.00	17.00	20.00	15.00	18.00	17.00	20.00	$13.50	$15.00
5	13.50	15.75	15.50	17.75	20.50	23.50	23.50	26.50	20.50	23.50	23.50	26.50	18.75	20.25
6	16.50	19.50	19.00	22.00	25.00	29.00	29.00	33.00	25.00	29.00	29.00	33.00	22.75	24.75
8	26.00	29.75	30.00	33.75	40.00	45.00	46.00	51.00	40.00	45.00	46.00	51.00	36.00	38.50
10	41.50	47.50	47.75	53.75	63.00	71.00	72.00	80.00	63.00	71.00	72.00	80.00	57.00	61.00
12	61.00	67.75	70.00	76.75	92.00	101.00	106.00	115.00	92.00	101.00	106.00	115.00	84.00	88.50
14	90.00	98.25	103.50	111.75	136.00	147.00	158.00	169.00	136.00	147.00	158.00	169.00	105.00	110.50
16	119.00	131.00	137.00	149.00	180.00	196.00	207.00	223.00	180.00	196.00	207.00	223.00	135.00	143.00
18	154.00	168.00	177.00	191.00	235.00	253.00	270.00	288.00	235.00	253.00	270.00	288.00	.....	.....
20	195.00	210.00	225.00	240.00	300.00	320.00	345.00	365.00	300.00	320.00	345.00	365.00	.....	.....
24	305.00	328.00	350.00	373.00	465.00	495.00	535.00	565.00	465.00	495.00	535.00	565.00	.....	.....

Taper Reducers

Size, Inches	With Flanges Faced	With Flanges Faced and Drilled	Size, Inches	With Flanges Faced	With Flanges Faced and Drilled	Size, Inches	With Flanges Faced	With Flanges Faced and Drilled	Size, Inches	With Flanges Faced	With Flanges Faced and Drilled	Size, Inches	With Flanges Faced	With Flanges Faced and Drilled
2½x2	$ 9.50	$10.40	5x4	$18.75	$20.25	10x 4	$57.00	$61.00	14x 8	$105.00	$110.50	18x14	$157.00	$166.00
3 x2	10.25	11.35	6x3	22.75	24.75	10x 5	57.00	61.00	14x10	105.00	110.50	18x16	157.00	166.00
3½x2½	12.25	13.50	6x3½	22.75	24.75	10x 6	57.00	61.00	14x12	105.00	110.50	20x12	180.00	190.00
4 x2	13.50	15.00	6x4	22.75	24.75	10x 8	57.00	61.00	16x 8	135.00	143.00	20x14	180.00	190.00
4 x2½	13.50	15.00	6x5	22.75	24.75	12x 5	84.00	88.50	16x10	135.00	143.00	20x16	180.00	190.00
4 x3	13.50	15.00	8x3	36.00	38.50	12x 6	84.00	88.50	16x12	135.00	143.00	20x18	180.00	190.00
5 x2	18.75	20.25	8x4	36.00	38.50	12x 8	84.00	88.50	16x14	135.00	143.00	24x16	285.00	300.00
5 x2½	18.75	20.25	8x5	36.00	38.50	12x10	84.00	88.50	18x10	157.00	166.00	24x18	285.00	300.00
5 x3	18.75	20.25	8x6	36.00	38.50	14x 6	105.00	110.50	18x12	157.00	166.00	24x20	285.00	300.00



Taper Reducer
Fig. No. 855



Brass Union Round End Fig. No. 484 For 125 Lbs. Steam Pressure

Brass Unions

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Brass Unions, Round End, Semi-Finished	.45	.55	.75	.95	1.30	1.75	2.50	3.00	4.50	8.25	12.75
Brass Unions, Round End, Finished	.50	.60	.85	1.05	1.40	1.90	2.75	3.25	5.00	9.00	14.00
Octa Unions, Rough	.60	.65	.85	1.10	1.50	2.00	2.80	3.60	5.25	9.00	14.00

Round End Unions furnished Semi-Finished unless otherwise specified. Finished, or Polished and Nickel plated to order only.



Brass Union Octa Pattern Fig. No. 485 For 200 Lbs. Steam Pressure

Extra Heavy Bronze Screwed Fittings

For 250 Lbs. Steam Pressure

	Cast Iron Pattern—Rough. For Iron Pipe														Cast Iron Pattern—Finished. For Iron Pipe											
Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6
Elbows, 90-Degree.....Each	.33	.45	.65	1.00	1.50	2.25	3.00	4.50	8.00	11.25	16.00	$22.	$35.	$45.	.73	.95	1.25	1.75	2.50	3.50	4.50	6.25	10.50	14.75	23.50	$31.	$48.	$60.
Elbows, Reducing.....Each	....	.55	.75	1.20	1.80	2.60	3.50	5.25	9.00	13.00	19.00	25.	40.	50.	....	1.15	1.50	2.10	3.00	4.10	5.35	7.50	12.00	17.25	28.00	36.	56.	70.
Elbows, 45-Degree.....Each	.45	.55	.75	1.10	1.65	2.50	3.25	4.50	8.00	11.25	16.00	22.	35.	45.	.95	1.15	1.50	2.00	2.85	4.00	5.10	6.75	11.00	15.50	25.00	33.	51.	65.
Elbows, R. and L.....Each	.40	.55	.75	1.20	1.80	2.60	3.50	5.25	9.00	13.00	....	....	....	....	.90	1.15	1.50	2.10	3.00	4.10	5.35	7.50	12.00	17.25	....	....	....	....
Tees.....Each	.45	.60	.90	1.35	2.00	3.00	4.00	6.00	10.75	15.00	22.00	30.	46.	60.	1.00	1.25	1.70	2.35	3.35	4.65	6.00	8.35	14.00	19.75	32.00	42.	64.	80.
Tees, Reducing.....Each	....	.70	1.05	1.55	2.30	3.50	4.50	6.75	12.00	17.00	25.00	35.	51.	66.	....	1.50	2.05	2.80	4.00	5.50	7.00	9.75	16.00	23.00	37.00	50.	70.	90.
Crosses.....Each	.70	.90	1.30	2.00	3.00	4.50	6.00	9.00	16.00	22.50	28.00	37.	60.	75.	1.50	1.90	2.50	3.50	5.00	7.00	9.00	12.50	21.00	29.50	43.00	55.	85.	105.
Crosses, Reducing.....Each	....	1.10	1.50	2.40	3.60	5.25	7.00	10.50	18.00	26.00	32.00	42.	66.	82.	....	2.35	3.00	4.25	6.00	8.25	10.75	15.00	24.00	35.00	50.00	64.	95.	120.
Couplings.....Each	.40	.50	.70	1.10	1.65	2.25	3.00	4.50	7.00	10.00	13.00	17.	27.	35.	.75	.90	1.15	1.70	2.40	3.20	4.15	5.85	9.00	13.00	18.50	24.	37.	47.
Return Bends, Close.....Each	....	....	1.65	2.50	3.50	5.00	7.00	10.00	16.00	22.00	30.00	40.	..	..	....	....	2.85	4.00	5.50	7.50	10.00	13.50	21.00	29.00	45.00	58.	....	....
Return Bends, Open.....Each	....	....	1.80	2.75	4.00	5.50	8.00	11.00	18.00	25.00	35.00	45.	....	....	....	....	3.00	4.25	6.00	8.00	11.00	14.50	23.00	32.00	50.00	63.	....	....
Y's.....Each	.90	1.10	1.50	2.50	3.50	5.50	7.25	11.00	19.00	27.00	33.00	45.	70.	90.	1.70	2.10	2.70	4.00	5.50	8.00	10.25	14.50	24.00	34.00	48.00	63.	96.	120.

Bronze Flanged Fittings and Flanges

Standard—For 150 Lbs. Steam Pressure
Extra Heavy—For 250 Lbs. Steam Pressure



Standard Bronze Flanged Fittings (125-Lb. C. I. Pattern)

Size.....Inches	2	2½	3	3½	4	5	6
Price, Flanged 90° Elbows, Fig. No. 1291, Faced only.....Each	25.00	33.75	43.75	58.75	68.00	93.00	123.00
Price, Flanged 90° Elbows, Fig. No. 1291, Faced and Drilled.....Each	26.00	35.00	45.00	60.00	70.00	95.00	125.00
Price, Flanged 45° Elbows, Fig. No. 1292, Faced only.....Each	27.50	37.25	47.75	63.75	73.00	98.00	133.00
Price, Flanged 45° Elbows, Fig. No. 1292, Faced and Drilled.....Each	28.50	38.50	49.00	65.00	75.00	100.00	135.00
Price, Flanged Tees, Fig. No. 1293, Faced only.....Each	37.50	50.75	65.75	88.25	102.00	137.00	187.00
Price, Flanged Tees, Fig. No. 1293, Faced and Drilled.....Each	39.00	52.50	67.50	90.00	105.00	140.00	190.00
Price, Flanged Crosses, Fig. No. 1294, Faced only.....Each	50.00	67.50	87.50	117.50	136.00	186.00	246.00
Price, Flanged Crosses, Fig. No. 1294, Faced and Drilled.....Each	52.00	70.00	90.00	120.00	140.00	190.00	250.00

Prices for sizes not given above furnished on application. Reducing Flanged Fittings made to order. Prices on application.

Extra Heavy Bronze Flanged Fittings (250-Lb. C. I. Pattern)

Size.....Inches	1	1¼	1½	2	2½	3	3½	4	5	6
Price, Flanged 90° Elbows, Fig. No. 1295, Faced only.....Each	13.00	15.00	20.00	25.00	33.75	43.75	58.75	68.00	93.00	123.00
Price, Flanged 90° Elbows, Fig. No. 1295, Faced and Drilled.....Each	14.00	16.00	21.00	26.00	35.00	45.00	60.00	70.00	95.00	125.00
Price, Flanged 45° Elbows, Fig. No. 1296, Faced only.....Each	14.00	16.00	22.00	27.50	37.25	47.75	63.75	73.00	98.00	133.00
Price, Flanged 45° Elbows, Fig. No. 1296, Faced and Drilled.....Each	15.00	17.00	23.00	28.50	38.50	49.00	65.00	75.00	100.00	135.00
Price, Flanged Tees, Fig. No. 1297, Faced only.....Each	19.50	22.50	30.00	37.50	50.75	65.75	88.25	102.00	137.00	187.00
Price, Flanged Tees, Fig. No. 1297, Faced and Drilled.....Each	21.00	24.00	31.50	39.00	52.50	67.50	90.00	105.00	140.00	190.00
Price, Flanged Crosses, Fig. No. 1298, Faced only.....Each	26.00	30.00	40.00	50.00	67.50	87.50	117.50	136.00	186.00	246.00
Price, Flanged Crosses, Fig. No. 1298, Faced and Drilled.....Each	28.00	32.00	42.00	52.00	70.00	90.00	120.00	140.00	190.00	250.00

Prices for sizes not given above furnished on application. Reducing Flanged Fittings made to order. Prices on application.

Standard Bronze Companion Flanges—Not Illustrated (125-Lb. C. I. Pattern)—Fig. No. 1045

Size.....Inches	1x4¼	1¼x4⅝	1½x5	2x6	2½x7	3x7½	3½x8½	4x9	5x10	6x11
Price, Faced.....Each	5.75	6.75	8.75	10.75	12.50	15.50	19.25	24.25	29.00	36.50
Price, Faced and Drilled.....Each	6.00	7.00	9.00	11.00	13.00	16.00	20.00	25.00	30.00	37.50

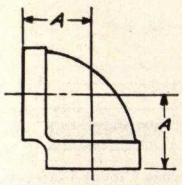
Extra Heavy Bronze Companion Flanges—Not Illustrated (250-Lb. C. I. Pattern)—Fig. No. 1047

Size.....Inches	1x4⅞	1¼x5¼	1½x6⅛	2x6½	2½x7½	3x8¼	3½x9	4x10	5x11	6x12½
Price, Faced.....Each	5.75	6.75	8.75	10.75	12.50	15.50	19.25	24.25	29.00	36.50
Price, Faced and Drilled.....Each	6.00	7.00	9.00	11.00	13.00	16.00	20.00	25.00	30.00	37.50

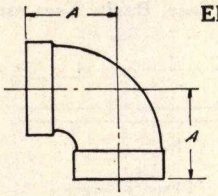
Bronze Flanged Fittings and Flanges Furnished Plain Faced and Drilled, unless otherwise specified.

Grinnell Cast Iron Drainage Fittings

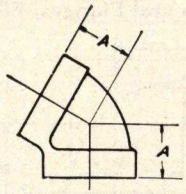
Elbows



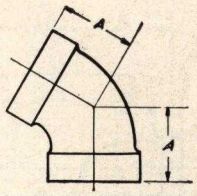
90° Short Turn Elbows
Fig. No. 701



90° Long Turn Elbows
Fig. No. 702



60° Short Turn Elbows
Fig. No. 703



60° Long Turn Elbows
Fig. No. 704

90-Degree Elbows—Fig. Nos. 701, 702

Size ..... Inches	1¼	1½	2	2½	3
Fig. 701. Dimension A ..... Inches	1¾	1 15/16	2¼	2 11/16	3 1/16
Fig. 702. Dimension A ..... Inches	2¼	2½	3 1/16	3 11/16	4¼
Fig. 701. Black ..... Each	$ .30	$ .38	$ .57	$ 1.20	$ 1.45
Galvanized ..... Each	.52	.67	1.00	2.10	2.55
Fig. 702. Black ..... Each	.35	.42	.65	1.40	1.75
Galvanized ..... Each	.60	.72	1.15	2.45	3.10

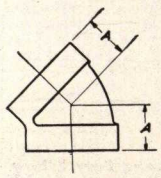
Size ..... Inches	4	5	6	8	10
Fig. 701. Dimension A ..... Inches	3 13/16	4½	5⅛	6 9/16	8 1/16
Fig. 702. Dimension A ..... Inches	5 3/16	6⅛	7⅛	9	11
Fig. 701. Black ..... Each	$ 2.30	$ 4.25	$ 6.25	$15.00	$31.00
Galvanized ..... Each	4.00	7.40	11.00	26.25	54.00
Fig. 702. Black ..... Each	2.75	5.25	7.50	19.00	38.00
Galvanized ..... Each	4.80	9.20	13.15	33.25	66.50

90-Degree Elbows are tapped, pitched ¼-inch to the foot.

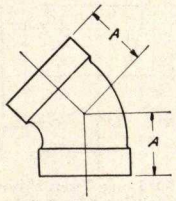
60-Degree Elbows—Fig. Nos. 703, 704

Size ..... Inches	1¼	1½	2	2½	3
Fig. 703. Dimension A ..... Inches	1 9/16	1¾	2 1/16	2½	2 7/8
Fig. 704. Dimension A ..... Inches	2	2¼	2 9/16	2 13/16	3 5/16
Fig. 703. Black ..... Each	$ .30	$ .38	$ .57	$ 1.20	$ 1.45
Galvanized ..... Each	.52	.67	1.00	2.10	2.55
Fig. 704. Black ..... Each	.35	.42	.65	1.40	1.75
Galvanized ..... Each	.60	.72	1.15	2.45	3.10

Size ..... Inches	4	5	6	8
Fig. 703. Dimension A ..... Inches	3⅜	3 7/8	4¼	5⅜
Fig. 704. Dimension A ..... Inches	4	5 5/16	.....	.....
Fig. 703. Black ..... Each	$ 2.30	$ 4.25	$ 6.25	$15.00
Galvanized ..... Each	4.00	7.40	11.00	26.25
Fig. 704. Black ..... Each	2.75	5.25	7.50	.....
Galvanized ..... Each	4.80	9.20	13.15	.....



45° Short Turn Elbows
Fig. No. 705

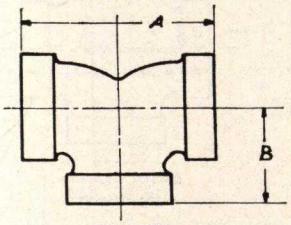


45° Long Turn Elbows
Fig. No. 706

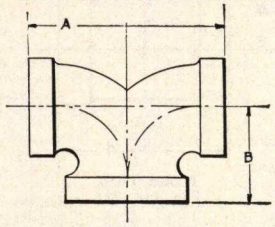
45-Degree Elbows—Fig. Nos. 705, 706

Size ..... Inches	1¼	1½	2	2½	3
Fig. 705. Dimension A ..... Inches	1 5/16	1 7/16	1 11/16	1 15/16	2 5/16
Fig. 706. Dimension A ..... Inches	1¾	1⅞	2¼	2⅝	2 15/16
Fig. 705. Black ..... Each	$ .30	$ .38	$ .57	$ 1.20	$ 1.45
Galvanized ..... Each	.52	.67	1.00	2.10	2.55
Fig. 706. Black ..... Each	.35	.42	.65	1.40	1.75
Galvanized ..... Each	.60	.72	1.15	2.45	3.10

Size ..... Inches	4	5	6	8	10
Fig. 705. Dimension A ..... Inches	2⅝	3 1/16	3 7/16	4¼	5 3/16
Fig. 706. Dimension A ..... Inches	3½	4⅛	4⅞	6	7⅜
Fig. 705. Black ..... Each	$ 2.30	$ 4.25	$ 6.25	$15.00	$31.00
Galvanized ..... Each	4.00	7.40	11.00	26.25	54.00
Fig. 706. Black ..... Each	2.75	5.25	7.50	19.00	38.00
Galvanized ..... Each	4.80	9.20	13.15	33.25	66.50



3-Way Elbows
Fig. No. 710



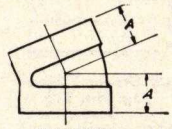
Reducing 3-Way Elbows
Fig. No. 711

Elbows—Fig. Nos. 710, 711

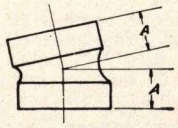
Size ..... Inches	1¼	1½	2	2½	3	4
Dimension A ..... Inches	4½	5	6⅛	7⅜	8½	10⅜
Dimension B ..... Inches	2¼	2½	3 1/16	3 11/16	4¼	5 3/16
Figs. 710, 711. Black .. Each	$ .75	$ .85	$ 1.10	$ 2.25	$ 3.00	$ 5.00
Galvanized . Each	1.25	1.50	1.95	3.90	5.25	8.75

Size ..... Inches	4x3	5	5x4	6	6x4	6x5
Dimension A ..... Inches	9½	12¼	11⅜	14¼	12⅜	13⅜
Dimension B ..... Inches	4 5/16	6⅛	5 5/16	7⅛	5 7/16	6¼
Figs. 710, 711. Black .. Each	$ 5.50	$ 7.50	$ 8.25	$13.50	$15.00	$15.00
Galvanized . Each	9.65	13.15	14.50	23.50	26.25	26.25

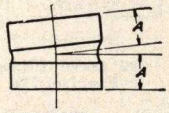
Inlets of 3-Way Elbows are tapped, pitched ¼-inch to the foot.
The Inlets of Reducing Fittings are always the smallest opening.



22½° Elbows
Fig. No. 707



11¼° Elbows
Fig. No. 708

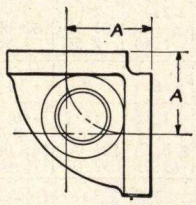


5⅝° Elbows
Fig. No. 709

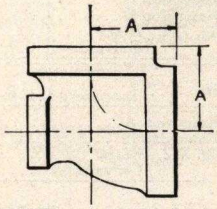
Elbows—Fig. Nos. 707, 708, 709

Size ..... Inches	1¼	1½	2	2½	3
Fig. 707. Dimension A ..... Inches	1⅛	1¼	1 7/16	1¾	2
Fig. 708. Dimension A ..... Inches	1 1/16	1¼	1⅜	1⅝	1 13/16
Fig. 709. Dimension A ..... Inches	1 3/16	1 5/16	1½	1⅝	1¾
Fig. 707. Black ..... Each	$ .30	$ .38	$ .57	$ 1.20	$ 1.45
Galvanized ..... Each	.52	.67	1.00	2.10	2.55
Fig. 708. Black ..... Each	.30	.38	.57	1.20	1.45
Galvanized ..... Each	.52	.67	1.00	2.10	2.55
Fig. 709. Black ..... Each	.30	.38	.57	1.20	1.45
Galvanized ..... Each	.52	.67	1.00	2.10	2.55

Size ..... Inches	4	5	6	8	10
Fig. 707. Dimension A ..... Inches	2 5/16	2⅝	2 15/16	3 9/16	4¼
Fig. 708. Dimension A ..... Inches	2	2¼	2⅝	2¾	3⅛
Fig. 709. Dimension A ..... Inches	1⅞	2	2¼	2½	2⅝
Fig. 707. Black ..... Each	$ 2.30	$ 4.25	$ 6.25	$15.00	$31.00
Galvanized ..... Each	4.00	7.40	11.00	26.25	54.00
Fig. 708. Black ..... Each	2.30	4.25	6.25	15.00	31.00
Galvanized ..... Each	4.00	7.40	11.00	26.25	54.00
Fig. 709. Black ..... Each	2.30	4.25	6.25	15.00	31.00
Galvanized ..... Each	4.00	7.40	11.00	26.25	54.00



90° Elbows with Side Inlet
Fig. No. 712



90° Elbows with Heel Inlet
Fig. No. 713

90-Degree Elbows—Fig. Nos. 712, 713

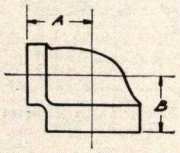
	Size	Dimension A	Size of Inlet	Price Black, Each	Price Galv., Each
Fig. 712	4	3 13/16	2	$3.85	$6.75
Fig. 713	4	3 13/16	2	3.85	6.75

Tapped, pitched ¼-inch to the foot.

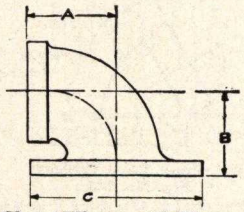
Dimensions subject to a slight variation and change without notice. Order by Figure Number.

Grinnell Cast Iron Drainage Fittings

Closet Elbows and Flanges, Elbows, Tees, Basin Tees and Crosses



Reducing Closet Elbows
Fig. No. 714

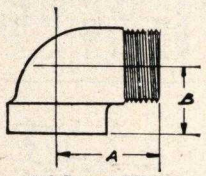


Closet Elbows with Flange
Fig. No. 715

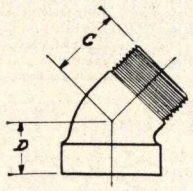
Closet Elbows—Fig. Nos. 714, 715

	Size	Dimensions A	Dimensions B	Dimensions Diam. C	Black Each	Galv., Each
Fig. 714	4x5	4 7/16	3 13/16	.....	$4.25	$7.40
Fig. 715	4	3 13/16	4 5/8	7	4.25	7.40

Tapped, pitched ¼-inch to the foot.
The Inlets of reducing fittings are always the smallest opening.



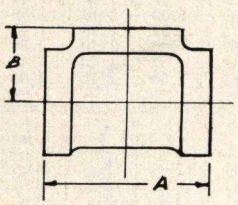
90° Street Elbow
Fig. No. 718



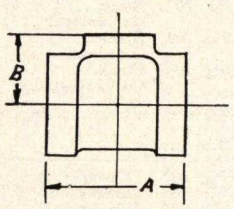
45° Street Elbow
Fig. No. 719

Street Elbows—Fig. Nos. 718, 719

Size ..... Inches	1¼	1½	2
Dimension A ..... Inches	2½	2 15/16	3¼
Dimension B ..... Inches	1 5/8	1 13/16	2 5/16
Dimension C ..... Inches	1 3/4	2	2¼
Dimension D ..... Inches	1¼	1¼	1 11/16
Figs. 718, 719. Black ..... Each	$ .35	$ .40	$ .60
Galvanized ..... Each	.60	.70	1.10



Tees
Fig. No. 722



Reducing Tees
Fig. No. 723

Tees—Fig. No. 722

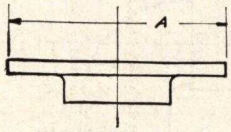
Size ..... Inches	1¼	1½	2	2½	3
Dimension A ..... Inches	3½	3 7/8	4½	5 3/8	6¼
Dimension B ..... Inches	1¾	1 15/16	2¼	2 11/16	3 1/8
Fig. 722. Black ..... Each	$ .45	$ .55	$ .80	$1.50	$2.00
Galvanized ..... Each	.80	1.00	1.40	2.50	3.50

Size ..... Inches	4	5	6	8	10
Dimension A ..... Inches	7½	9	10¼	13 1/8	16 1/8
Dimension B ..... Inches	3 3/4	4½	5 1/8	6 9/16	8 1/16
Fig. 722. Black ..... Each	$ 3.25	$ 6.00	$ 8.75	$21.00	$43.00
Galvanized ..... Each	5.70	10.50	15.25	37.00	75.00

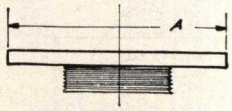
Reducing Tees—Fig. No. 723

Size ..... Inches	1½x1¼	2x1¼	2x1½	2½x2	3x1½	3x2
Dimension A ..... Inches	3 7/8	3 3/4	4 1/8	4 3/4	5½	5½
Dimension B ..... Inches	1 15/16	2 1/8	2¼	3	3	3
Fig. 723. Black ..... Each	$ .60	$ .90	$ .90	$1.65	$2.20	$2.20
Galvanized . Each	1.10	1.60	1.60	2.75	3.85	3.85

Size ..... Inches	4x2	4x3	5x2	5x3	5x4	6x4
Dimension A ..... Inches	6	7	6	6 7/8	9	8 1/8
Dimension B ..... Inches	3 9/16	3 3/4	4 5/16	4 5/8	4½	4 15/16
Fig. 723. Black ..... Each	$ 3.60	$ 3.60	$ 6.60	$ 6.60	$ 6.60	$ 9.60
Galvanized . Each	6.30	6.30	11.55	11.55	11.55	16.75



Closet Flanges
Fig. No. 716



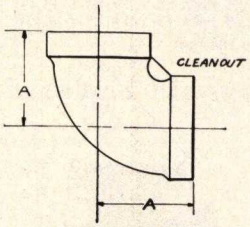
Brass Closet Flanges
Fig. No. 717

Closet Flanges—Fig. No. 716

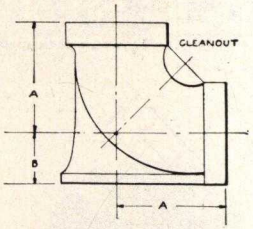
Size ..... Inches	4
Diameter of Flange A ..... Inches	7
Fig. 716. Black ..... Each	$1.35
Galvanized ..... Each	2.35

Brass Closet Flanges—Fig. No. 717

Size ..... Inches	4
Diameter of Flange A ..... Inches	7
Fig. 717 ..... Each	$7.00



90° Long Turn Elbow
With Cleanout
Fig. No. 720

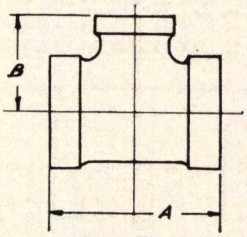


90° Long Turn Elbow
With Cleanout—With Base
Fig. No. 721

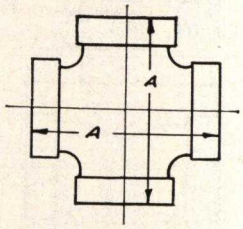
90-Degree Long Turn Elbows with Cleanout—Fig. Nos. 720, 721

Size ..... Inches	2	3	4	5	6
Dimension A ..... Inches	.....	.....	5 3/16	6 1/8	7 1/8
Dimension B ..... Inches	.....	.....	2 13/16	3 9/16	4 1/16
Size of Cleanout ..... Inches	.....	.....	2	2	2½
Fig. 720. Black ..... Each	$ 1.20	$ 3.00	$ 5.00	$ 7.50	$10.00
Galvanized ..... Each	2.10	5.25	8.75	13.00	17.50
Fig. 721. Black ..... Each	3.00	4.50	7.00	12.00	18.00
Galvanized ..... Each	5.25	8.00	12.25	21.00	31.50

Long Turn Elbows are tapped, pitched ¼-inch to the foot.



Basin Tees
Fig. No. 724



Basin Crosses
Fig. No. 725

Basin Tees—Fig. No. 724

Size ..... Inches	1¼	1½	1½x1¼	2	2x1¼	2x1½	2½
Dimension A ..... Inches	4 5/8	5 3/8	5 1/8	7	6 1/4	6 1/2	8 1/2
Dimension B ..... Inches	2 5/16	2 11/16	2 9/16	3½	3 1/8	3 1/4	4 1/4
Fig. 724. Black ..... Each	$ .60	$ .70	$ .77	$1.10	$1.20	$1.20	$1.75
Galv. ..... Each	1.00	1.22	1.35	1.95	2.10	2.10	3.00

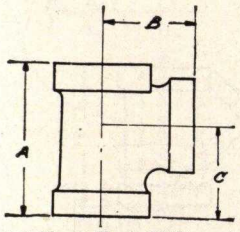
Basin Crosses—Fig. No. 725

Size ..... Inches	1¼	1½	2	2x1½
Dimension A ..... Inches	4 5/8	5 3/8	7	6 1/2
Fig. 725. Black ..... Each	$1.25	$1.50	$1.75	$1.95
Galvanized ..... Each	2.25	2.50	3.10	3.40

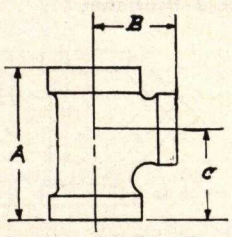
The Inlets of Tees, Basin Tees and Crosses are tapped, pitched ¼-inch to the foot.
The Inlets of Reducing Fittings are always the smallest openings.

Dimensions subject to a slight variation and change without notice. Order by Figure Number.

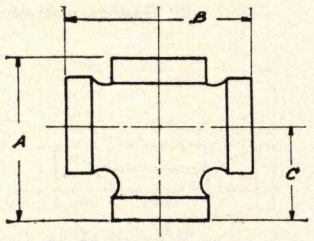
Grinnell Cast Iron Drainage Fittings



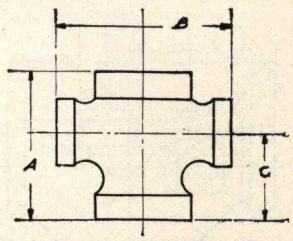
90° Short Turn Y-Branches Tee Pattern Fig. No. 726



Reducing 90° Short Turn Y-Branches, Tee Pattern Fig. No. 727



Double 90° Short Turn Y-Branches, Tee Pattern Fig. No. 728



Reducing Double 90° Short Turn Y-Branches, Tee Pattern Fig. No. 729

90-Degree Short Turn Y-Branches, Tee Pattern—Fig. No. 726

Size.....In.	1¼	1½	2	2½	3	4	5	6	8	10
Dimens. A...In.	3¾	4¼	5 3/16	6 5/16	7¼	8¾	10 5/16	11 15/16	15 1/16	18¼
Dimens. B...In.	2¼	2½	3 1/16	3 11/16	4¼	5 5/16	6⅛	7⅛	9	11
Dimens. C...In.	2¼	2½	3 1/16	3 11/16	4¼	5 5/16	6⅛	7⅛	9	11
Fig. 726.										
Black...Each	$ .45	$ .57	$ .85	$1.80	$2.20	$3.50	$6.50	$9.50	23.00	47.00
Galv.....Each	.80	1.00	1.50	3.15	3.85	6.15	11.35	16.50	40.00	82.00

Reducing 90-Degree Short Turn Y-Branches, Tee Pattern Fig. No. 727

Size.....Inches	1¼x1	1½x1¼	2x1¼	2x1½	2½x1¼	2½x1½	2½x2
Dimension A....Inches	3¾	3 7/8	4 3/8	4 5/8	4 3/8	4 7/8	5½
Dimension B....Inches	2 7/16	2½	2 7/8	2 13/16	2 13/16	3 1/16	3 5/16
Dimension C....Inches	2 3/8	2 3/8	2 11/16	2 11/16	2½	2 13/16	3¼
Fig. 727. Black...Each	$ .50	$ .63	$ .95	$ .95	$ 2.00	$ 2.00	$2.00
Galvanized.....Each	.90	1.10	1.65	1.65	3.50	3.50	3.50

Size.....Inches	3x1½	3x2	3x2½	4x1½	4x2	4x2½
Dimension A.....Inches	5 1/16	5 11/16	7¼	5¼	5 13/16	6 5/8
Dimension B.....Inches	3 5/16	3 5/8	4¼	3 13/16	4 1/16	4 7/16
Dimension C.....Inches	2 15/16	3 5/16	4¼	3	3 3/8	3 13/16
Fig. 727. Black.....Each	$2.40	$2.40	$2.40	$3.85	$3.85	$3.85
Galvanized.....Each	4.20	4.20	4.20	6.75	6.75	6.75

Size.....Inches	4x3	5x1½	5x2	5x3	5x4	6x2
Dimension A.....Inches	7 3/8	5 9/16	6⅛	7¾	9⅛	6¼
Dimension B.....Inches	4¾	4 3/8	4 5/8	5¼	5 11/16	5⅛
Dimension C.....Inches	4 5/16	3 5/16	3 9/16	4½	5 3/8	3 5/8
Fig. 727. Black.....Each	$ 3.85	$ 7.15	$ 7.15	$ 7.15	$ 7.15	$10.50
Galvanized.....Each	6.75	12.50	12.50	12.50	12.50	18.50

Size.....Inches	6x3	6x4	6x5	8x3	8x4	8x6
Dimension A.....Inches	7 7/8	9¼	10 9/16	9 15/16	11 7/16	15 1/16
Dimension B.....Inches	5¾	6 8/16	6 5/8	7¼	7 9/16	8½
Dimension C.....Inches	4 9/16	5 7/16	6¼	6 3/8	7½	10
Fig. 727. Black.....Each	$10.50	$10.50	$10.50	$25.50	$25.50	$25.50
Galvanized.....Each	18.50	18.50	18.50	44.50	44.50	44.50

The Inlets of 90-Degree Y-Branches are tapped, pitched ¼-inch to the foot.
The Inlets of Reducing Fittings are always the smallest openings.

Double 90-Degree Short Turn Y-Branches, Tee Pattern Fig. No. 728

Size.....Inches	1¼	1½	2	2½	3
Dimension A.....Inches	3¾	4¼	5 3/16	6 5/16	7¼
Dimension B.....Inches	4½	5	6⅛	7 3/8	8½
Dimension C.....Inches	2¼	2½	3 1/16	3 11/16	4¼
Fig. 728. Black.....Each	$ .70	$ .85	$1.30	$2.85	$3.40
Galvanized.....Each	1.22	1.50	2.30	5.00	5.95

Size.....Inches	4	5	6	8	10
Dimension A.....Inches	8¾	10 5/16	11 15/16	15 1/16	18¼
Dimension B.....Inches	10 3/8	12¼	14¼	18	22
Dimension C.....Inches	5 3/16	6⅛	7⅛	9	11
Fig. 728. Black.....Each	$ 5.25	$ 9.50	$14.00	$36.00	$ 60.00
Galvanized.....Each	9.20	16.50	24.50	62.00	102.00

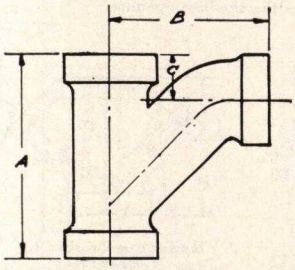
Reducing Double 90-Degree Short Turn Y-Branches, Tee Pattern—Fig. No. 729

Size.....Inches	1½x1¼	2x1¼	2x1½	2½x1½	2½x2	3x1½
Dimension A.....Inches	3 7/8	4 3/8	4 5/8	4 7/8	5½	5 1/16
Dimension B.....Inches	5	5¾	5 7/8	6⅛	6 5/8	6 5/8
Dimension C.....Inches	2 3/8	2 9/16	2 11/16	2 13/16	3¼	2 15/16
Fig. 729. Black.....Each	$ .95	$1.50	$1.50	$3.15	$3.15	$3.75
Galvanized . Each	1.65	2.60	2.60	5.50	5.50	6.55

Size.....Inches	3x2	4x2	4x3	5x2	5x3	5x4
Dimension A.....Inches	5 11/16	5 13/16	7 3/8	6⅛	7¾	9⅛
Dimension B.....Inches	7¼	8⅛	9½	9¼	10½	11 3/8
Dimension C.....Inches	3 5/16	3 3/8	4 5/16	3 9/16	4½	5 3/8
Fig. 729. Black.....Each	$ 3.75	$ 5.75	$ 5.75	$10.50	$10.50	$10.50
Galvanized . Each	6.55	10.00	10.00	18.50	18.50	18.50

Size.....Inches	6x2	6x3	6x4	6x5	8x6
Dimension A.....Inches	6¼	7 7/8	9¼	10 9/16	15 1/16
Dimension B.....Inches	10¼	11½	12 3/8	13¼	17
Dimension C.....Inches	4 9/16	5 7/16	6¼	7 1/2	10
Fig. 729. Black.....Each	$15.50	$15.50	$15.50	$15.50	$40.00
Galvanized.....Each	27.00	27.00	27.00	27.00	68.00

The Inlets of 90-Degree Y-Branches are tapped, pitched ¼-inch to the foot.
The Inlets of Reducing Fittings are always the smallest openings.

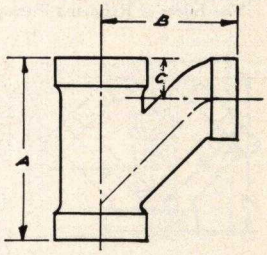


90° Long Turn Y-Branches Tee Pattern—Fig. No. 730

90 Degree Long Turn Y-Branches, Tee Pattern—Fig. No. 730

Size.....Inches	1¼	1½	2	2½	3
Dimension A.....Inches	4¾	5 3/8	7	8¼	9 7/8
Dimension B.....Inches	3 5/8	4 1/8	5¼	6¼	7½
Dimension C.....Inches	1⅞	1¼	1¾	2	2 3/8
Fig. 730. Black.....Each	$ .57	$ .70	$1.10	$2.40	$3.35
Galvanized....Each	1.00	1.22	1.95	4.20	5.85

Size.....Inches	4	5	6	8
Dimension A.....Inches	13	15 3/4	18¾	24½
Dimension B.....Inches	9 7/8	12¼	14 5/8	19
Dimension C.....Inches	3⅛	3½	4⅛	5½
Fig. 730. Black.....Each	$ 6.00	$ 9.50	$20.00	$40.00
Galvanized.....Each	10.50	16.50	35.00	70.00



Reducing 90° Long Turn Y-Branches, Tee Pattern Fig. No. 731

Reducing 90 Degree Long Turn Y-Branches, Tee Pattern—Fig. No. 731

Size.....Inches	1½x1¼	2x1¼	2x1½	2½x1½	2½x2	3x1½	3x2	4x1½	4x2
Dimension A...Inches	5⅛	5¾	5¾	5¾	7⅜	5 15/16	7 9/16	6 1/16	7 11/16
Dimension B...Inches	3 7/8	4 3/8	4 3/8	4 9/16	5 3/4	5	6 1/16	5 7/16	6 5/8
Dimension C...Inches	1 5/16	1 5/16	1 5/16	1 5/16	1 5/8	1 5/16	1 5/8	1 5/16	1 5/8
Fig. 731. Black..Each	$ .80	$1.20	$1.20	$2.65	$2.65	$3.75	$3.75	$6.60	$6.60
Galvanized....Each	1.40	2.10	2.10	4.65	4.65	6.55	6.55	11.55	11.55

Size.....Inches	4x2½	4x3	5x1½	5x2	5x3	5x4	6x2	6x3
Dimension A.....Inches	8 5/8	10	6 5/16	7¾	10¼	13	7 15/16	10 3/8
Dimension B.....Inches	7 1/16	8 1/16	6	7⅛	8 5/8	10 7/16	7¾	9⅛

The Inlets of Long Turn 90-Degree Y-Branches are tapped, pitched ¼-inch to the foot.
The Inlets of Reducing Fittings are always the smallest openings.

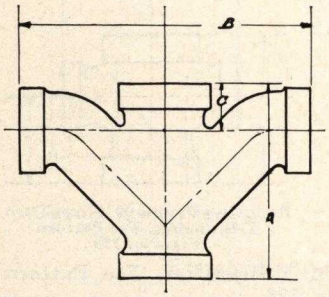
Size.....Inches	4x2½	4x3	5x1½	5x2	5x3	5x4	6x2	6x3
Dimension C.....Inches	2	2 3/8	1 3/8	1 5/8	2 3/8	2 7/8	1 5/8	2 5/16
Fig. 731. Black.....Each	6.60	6.60	10.50	10.50	10.50	10.50	22.00	22.00
Galvanized..Each	11.55	11.55	18.50	18.50	18.50	18.50	38.50	38.50

Size.....Inches	6x4	6x5	8x3	8x4	8x6	10x4	10x6
Dimension A.....Inches	13 1/16	16 1/16	10 5/8	13 3/8	19¼	14	20¼
Dimension B.....Inches	11	12 13/16	10¼	12	15 9/16	13	17¼
Dimension C.....Inches	2 7/8	3½	2 5/16	2 15/16	4⅛	3	4 1/16
Fig. 731. Black.....Each	$22.00	$22.00	$44.00	$44.00	$44.00	$60.00	$60.00
Galvanized .....Each	38.50	38.50	77.00	77.00	77.00	102.00	102.00

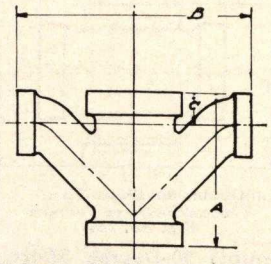
Dimensions subject to a slight variation and change without notice.
Order by Figure Number.

Grinnell Cast Iron Drainage Fittings

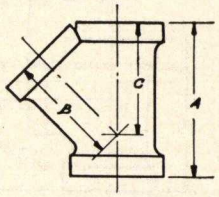
90 Degree and 45 Degree Y-Branches



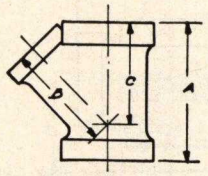
Double 90° Long Turn Y-Branches
Tee Pattern—Fig. No. 732



Reducing Double 90° Long Turn
Y-Branches—Tee Pattern
Fig. No. 733



45° Y-Branches
Fig. No. 734



Reducing 45° Y-Branches
Fig. No. 735

Double 90-Degree Long Turn Y-Branches, Tee Pattern Fig. No. 732

Size ..... Inches	1¼	1½	2
Dimension A ..... Inches	4¾	5⅜	7
Dimension B ..... Inches	7¼	8¼	10½
Dimension C ..... Inches	1⅛	1¼	1¾
Fig. 732. Black ..... Each	$1.00	$1.10	$1.75
Galvanized ..... Each	1.75	1.95	3.10

Size ..... Inches	2½	3	4
Dimension A ..... Inches	8¼	9⅞	13
Dimension B ..... Inches	12½	15	19¾
Dimension C ..... Inches	2	2⅜	3⅛
Fig. 732. Black ..... Each	$3.60	$5.00	$9.00
Galvanized ..... Each	6.30	8.75	15.75

Reducing Double 90-Degree Long Turn Y-Branches, Tee Pattern—Fig. No. 733

Size ..... Inches	1½x1¼	2x1¼	2x1½	2½x1½
Dimension A ..... Inches	5⅛	5¾	5¾	5¾
Dimension B ..... Inches	7¾	8¾	8¾	9⅛
Dimension C ..... Inches	1⅜16	1⅝16	1⅝16	1⅝16
Fig. 733. Black ..... Each	$ 1.25	$ 1.90	$ 1.90	$ 4.00
Galvanized ..... Each	2.25	3.35	3.35	7.00

Size ..... Inches	2½x2	3x1½	3x2	4x2
Dimension A ..... Inches	7⅜	5¹⁵⁄16	7⅞16	7¹¹⁄16
Dimension B ..... Inches	11½	10	12⅛	13¼
Dimension C ..... Inches	1⅝	1⅝16	1⅝	1⅝
Fig. 733. Black ..... Each	$ 4.00	$ 5.50	$ 5.50	$10.00
Galvanized ..... Each	7.00	9.65	9.65	17.50

Size ..... Inches	4x3	5x4	6x2	6x4
Dimension A ..... Inches	10	13	7¹⁵⁄16	13¹⁄16
Dimension B ..... Inches	16⅛	20⅞	15½	22
Dimension C ..... Inches	2⅜8	2⅞	1⅝	2⅞
Fig. 733. Black ..... Each	$10.00	$15.50	$33.00	$33.00
Galvanized ..... Each	17.50	27.00	58.00	58.00

The Inlets of Double 90-Degree Long Turn Y-Branches are tapped, pitched ¼-inch to the foot.
The Inlets of Reducing Fittings are always the smallest openings.

45-Degree Y-Branches—Fig. No. 734

Size ..... Inches	1¼	1½	2	2½	3
Dimension A ..... Inches	5	5½	6½	7⅞	9
Dimension B ..... Inches	3¼	3⅝	4⅜8	5⅜8	6⅜16
Dimension C ..... Inches	3¼	3⅜8	4⅜8	5⅜8	6⅜16
Fig. 734. Black ..... Each	$ .52	$ .65	$ .95	$ 2.10	$ 2.65
Galvanized ..... Each	.90	1.15	1.65	3.70	4.65

Size ..... Inches	4	5	6	8	10
Dimension A ..... Inches	10⅞	12¹⁵⁄16	14⅞	18¹³⁄16	23
Dimension B ..... Inches	7¹¹⁄16	9⅜16	10¾	13⁹⁄16	16½
Dimension C ..... Inches	7¹¹⁄16	9⅜16	10¾	13⁹⁄16	16½
Fig. 734. Black ..... Each	$ 3.85	$ 7.10	$10.50	$25.00	$52.00
Galvanized ..... Each	6.75	12.50	18.50	44.00	91.00

Reducing 45-Degree Y-Branches—Fig. No. 735

Size ..... Inches	1½x1¼	2x1¼	2x1½	2½x1½	2½x2	3x1½
Dimension A ..... Inches	5¼	5⅜8	5⅞	6⅞16	7¹⁄16	6⅝
Dimension B ..... Inches	3⅞16	3¹⁵⁄16	4⅛	4⅝	5⅛	5¹⁄16
Dimension C ..... Inches	3½	3¾	4¹⁄16	4⅜16	4¹⁵⁄16	4¹⁵⁄16
Fig. 735. Black ..... Each	$ .72	$ 1.05	$ 1.05	$ 2.30	$ 2.30	$ 2.90
Galvanized . Each	1.25	1.85	1.85	4.00	4.00	5.10

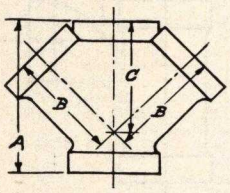
Size ..... Inches	3x2	3x2½	4x1½	4x2	4x2½	4x3
Dimension A ..... Inches	7⅜8	8	7⅜16	7¹¹⁄16	8¼	9¼
Dimension B ..... Inches	5⅜8	5¹³⁄16	6⅛16	6⅝16	6⅞16	7⅜16
Dimension C ..... Inches	5⅝16	5¹¹⁄16	5¾	6	6	6⅞
Fig. 735. Black ..... Each	$ 2.90	$ 2.90	$ 4.25	$ 4.25	$ 4.25	$ 4.25
Galvanized . Each	5.10	5.10	7.40	7.40	7.40	7.40

Size ..... Inches	5x2	5x3	5x4	6x2	6x3
Dimension A ..... Inches	8¼	9¹³⁄16	11⅜6	8⅞16	10
Dimension B ..... Inches	7⅜8	7⅞	8½	8¹⁄16	8¾
Dimension C ..... Inches	6⅞	7⅝	8⅞16	7⅜16	8⅝16
Fig. 735. Black ..... Each	$ 7.80	$ 7.80	$ 7.80	$11.50	$11.50
Galvanized ..... Each	13.65	13.65	13.65	20.00	20.00

Size ..... Inches	6x4	6x5	8x4	8x6	10x6
Dimension A ..... Inches	11⅞	13	11⅞16	14¹⁵⁄16	16
Dimension B ..... Inches	9⅜8	10	11	12⅜8	13¾
Dimension C ..... Inches	9¹⁄16	9¹³⁄16	10⅞16	11⅞	12¹⁵⁄16
Fig. 735. Black ..... Each	$11.50	$11.50	$27.50	$27.50	$57.00
Galvanized ..... Each	20.00	20.00	48.00	48.00	97.00

The Inlets of Reducing Fittings are always the smallest openings.

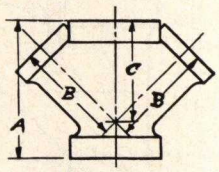
Double 45 Degree Y-Branches—Fig. No. 736



Double 45° Y-Branches
Fig. No. 736

Size ..... Inches	1¼	1½	2	2½	3
Dimension A ..... Inches	5	5½	6½	7⅞	9
Dimension B ..... Inches	3¼	3⅝	4⅜8	5⅜8	6⅜16
Dimension C ..... Inches	3¼	3⅜8	4⅜8	5⅜8	6⅜16
Fig. 736. Black ..... Each	$ .90	$1.00	$1.45	$3.25	$4.00
Galvanized ..... Each	1.60	1.75	2.55	5.70	7.00

Size ..... Inches	4	5	6	8	10
Dimension A ..... Inches	10⅞	12¹⁵⁄16	14⅞	18¹³⁄16	23
Dimension B ..... Inches	7¹¹⁄16	9⅜16	10¾	13⁹⁄16	16½
Dimension C ..... Inches	7¹¹⁄16	9⅜16	10¾	13⁹⁄16	16½
Fig. 736. Black ..... Each	$ 5.75	$10.75	$16.00	$38.00	$ 78.00
Galvanized ..... Each	10.00	18.80	28.00	66.50	137.00



Reducing Double 45°
Y-Branches
Fig. No. 737

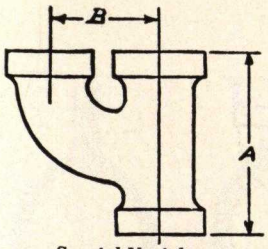
Reducing Double 45 Degree Y-Branches—Fig. No. 737

Size ..... Inches	1½x1¼	2x1½	2½x1½	3x1½	3x2	4x2	4x3	5x2
Dimension A ..... Inches	5¼	5⅞	6⅞16	6⅝	7⅜8	7¹¹⁄16	9¼	8¼
Dimension B ..... Inches	3⅞16	4⅛	4⅝	5¹⁄16	5⅜8	6⅝16	7⅜16	7⅜16
Dimension C ..... Inches	3½	4¹⁄16	4⅜16	4¹⁵⁄16	5⅝16	6	6⅞	6⅞
Fig. 737. Black ..... Each	$1.10	$1.60	$3.60	$4.40	$4.40	$ 6.35	$ 6.35	$11.75
Galvanized ..... Each	1.90	2.80	6.30	7.70	7.70	11.00	11.00	20.50

Size ..... Inches	5x3	5x4	6x2	6x3	6x4	6x5	8x4	8x6
Dimension A ..... Inches	9¹³⁄16	11⅜8	8⅞16	10	11⅞	13	11⅞16	14¹⁵⁄16
Dimension B ..... Inches	7⅞	8½	8¹⁄16	8¾	9⅜8	10	11	12⅜8
Dimension C ..... Inches	7⅝8	8⅞16	7⅜16	8⅝16	9¹⁄16	9¹³⁄16	10⅞16	11⅞
Fig. 737. Black ..... Each	$11.75	$11.75	$17.50	$17.50	$17.50	$17.50	$42.00	$42.00
Galvanized ..... Each	20.50	20.50	30.50	30.50	30.50	30.50	72.00	72.00

The Inlets of Reducing Fittings are always the smallest openings. Dimensions subject to a slight variation and change without notice. Order by Figure Number.

Grinnell Cast Iron Drainage Fittings

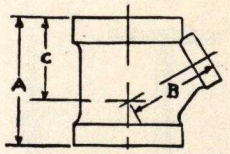


Special Upright Y-Branches Fig. No. 738

Special Upright Y-Branches*—Fig. No. 738

Size ... Inches	1¼	1½	2
Dimension A ... Inches	5⅜	6	6⅝
Dimension B ... Inches	2 13/16	3¼	4
Fig. 738. Black ... Each	Prices on Application		$2.65
Galvanized ... Each	Prices on Application		4.65

*Reducing sizes of Special Upright Y's carry same dimensions as straight sizes. The Inlets of Reducing Fittings are always the smallest openings.

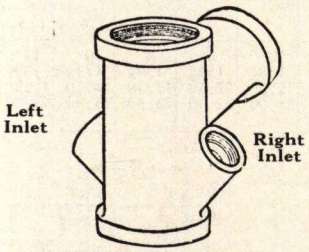


60° Y-Branches Fig. No. 739

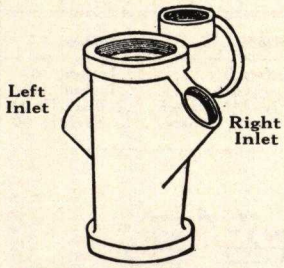
60 Degree Y-Branches—Fig. No. 739

Size ... Inches	1¼	1½	2	2x1½	3	3x2	4	4x2	4x3	5	5x3	6
Dimension A ... Inches	.....	4 5/8	5½	4 15/16	.....	6 7/16	9⅜	6 11/16	.....	11⅛	8½	13
Dimension B ... Inches	.....	2⅝	3¼	3 1/16	.....	4⅛	5¾	4¾	.....	6¾	6	7⅞
Dimension C ... Inches	.....	2⅝	3¼	2 15/16	.....	3 15/16	5¾	4 5/16	.....	6¾	5 9/16	7⅞
Fig. 739. Black ... Each	$ .52	$ .65	$ .95	$1.05	$2.65	$2.90	$3.85	$4.25	$4.25	$ 7.10	$ 7.80	$10.50
Galvanized ... Each	.90	1.15	1.65	1.85	4.65	5.10	6.75	7.40	7.40	12.50	13.65	18.50

90-Degree Y-Branches with Auxiliary Inlets—(Closet Tees)



With Side Inlets Only Fig. No. 740



With Side and Top Inlets Fig. No. 741

Size ... Inches		3	4	5x4	6x4
Fig. No. 740—with 2-inch Inlet.					
Right Side only.	Black ... Each	$ 5.25	$ 9.00	$12.00	$23.00
	Galvanized ... Each	9.20	15.75	21.00	40.00
Left Side only.	Black ... Each	5.25	9.00	12.00	23.00
	Galvanized ... Each	9.20	15.75	21.00	40.00
Both Sides.	Black ... Each	5.75	10.00	13.00	25.00
	Galvanized ... Each	10.00	17.50	22.75	44.00
Fig. No. 741 with 2-inch Top Inlet and 2-inch Inlet.					
Right Side only.	Black ... Each	5.75	10.00	13.00	25.00
	Galvanized ... Each	10.00	17.50	22.75	44.00
Left Side only.	Black ... Each	5.75	10.00	13.00	25.00
	Galvanized ... Each	10.00	17.50	22.75	44.00
Both Sides.	Black ... Each	6.50	11.00	14.50	28.00
	Galvanized ... Each	11.35	19.25	25.50	49.00

The 90-Degree Inlets of Closet Tees are tapped, pitched ¼-inch to the foot.
The Inlets of Reducing Fittings are always the smallest openings.
For dimensions covering the above Long Turn Fittings see Fig. Nos. 730, 731.

90-Degree Short Turn Y-Branches with Vents with Auxiliary Inlets—(Closet Tees)

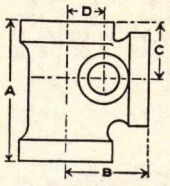


Fig. No. 760

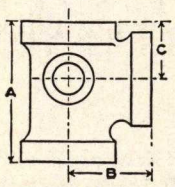


Fig. No. 762

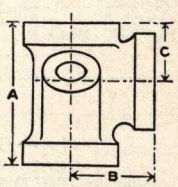
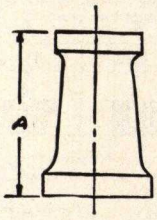


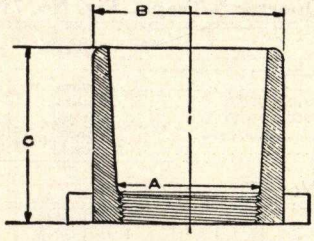
Fig. No. 764

Size ... Inches	4
Dimension A ... Inches	8¾
Dimension B ... Inches	5 5/16
Dimension C ... Inches	3 9/16
Dimension D ... Inches	2 5/16
Fig. 760—2-inch Vent on Branch. Right Side. Black ... Each	$5.75
Galvanized ... Each	10.00
Fig. 761—2-inch Vent on Branch. Left Side. Black ... Each	5.75
Galvanized ... Each	10.00
Fig. 762—2-inch Inlet on Body. Right Side. Black ... Each	5.75
Galvanized ... Each	10.00
Fig. 763—2-inch Inlet on Body. Left Side. Black ... Each	5.75
Galvanized ... Each	10.00
Fig. 764—2-inch 45° Inlet on Body. Right Side. Black ... Each	6.35
Galvanized ... Each	11.00
Fig. 765—2-inch 45° Inlet on Body. Left Side. Black ... Each	6.35
Galvanized ... Each	11.00

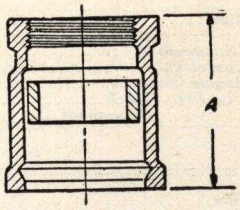
The 4-inch Inlets are tapped, pitched ¼-inch to the foot.
Sketches show Right Hand Vents and Inlets.



Increaser—Fig. No. 742



Roof Connection—Fig. No. 743



Tucker Connection Fig. No. 744

Increasers—Fig. No. 742

Size ... Inches	3x2	4x2	4x3	5x2	5x3	5x4	6x4	6x5	8x4	8x6	10x8
Dimension A ... Inches	9	9	9	9	9	9	9	9	9	9	9
Fig. 742. Black ... Each	$2.50	$3.75	$3.75	$5.50	$5.50	$5.50	$ 6.50	$ 6.50	$15.00	$15.00	$20.00
Galvanized ... Each	4.40	6.55	6.55	9.65	9.65	9.65	11.35	11.35	26.25	26.25	35.00

Roof Connections—Fig. No. 743

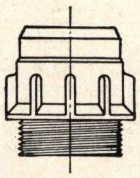
Size ... Inches	2	3	4	5	6
Dimension A ... Inches	2 15/16	4⅛	5⅛	6	7⅛
Dimension B ... Inches	3½	4 7/8	5 7/8	6 7/8	8
Dimension C ... Inches	3¾	4½	5	5½	6
Fig. 743. Black ... Each	$1.15	$1.20	$1.50	$2.00	$4.25
Galvanized ... Each	2.00	2.10	2.60	3.50	7.40

Tucker Connections—Fig. No. 744

Size ... Inches	1½	2	3	4	5	6	8
Dimension A ... Inches	4 5/16	4½	4¾	6¾	7	7	8 11/16
Fig. 744. Black ... Each	.55	.80	2.00	3.25	6.00	8.75	21.00
Galv. ... Each	1.00	1.40	3.50	5.70	10.50	15.25	37.00

Dimensions subject to a slight variation and change without notice. Order by Figure Number.

Grinnell Cast Iron Drainage Fittings



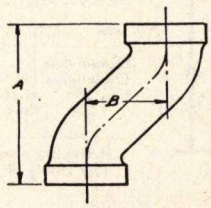
Soldering Nipples
Fig. No. 745

Brass Soldering Nipples—Fig. No. 745

Size.....Inches	1	1¼	1½	2	3	4	5
Fig. 745.....Each	$ .80	$ .90	$1.05	$1.50	$2.75	$4.00	$9.00

Offsets—Fig. No. 747

Size.....Inches	2	2	2	2	3	3	3
Offset B.....Inches	4	6	8	10	4	6	8
Length A.....Inches	7½	9½	11½	13½	8¾	10¾	12¾
Fig. 747. Black.....Each	$2.15	$2.40	$2.60	$2.85	$3.35	$4.00	$4.75
Galv.....Each	3.75	4.20	4.55	5.00	5.85	7.00	8.30

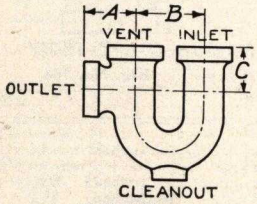


Offsets
Fig. No. 747

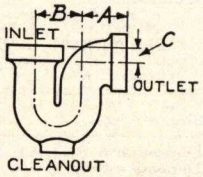
Offsets—Fig. No. 747

Size.....Inches	3	4	4	4	4	4	5
Offset B.....Inches	10	4	6	8	10	12	6
Length A.....Inches	14¾	9¾	11¾	13¾	15¾	17¾	12⅝
Fig. 747. Black.....Each	$5.50	$5.00	$5.75	$6.50	$7.50	$8.50	$9.00
Galv.....Each	9.65	8.75	10.00	11.35	13.15	15.00	15.75

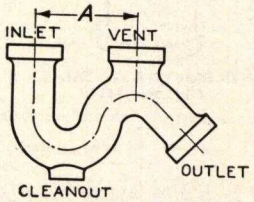
Size.....Inches	5	5	5	6	6	6	6
Offset B.....Inches	8	10	12	6	8	10	12
Length A.....Inches	14⅝	16⅝	18⅝	13⅝	15⅝	17⅝	19⅝
Fig. 747. Black.....Each	10.00	11.00	12.00	12.50	13.50	14.50	15.50
Galv.....Each	17.50	19.25	21.00	22.00	23.50	25.50	27.00



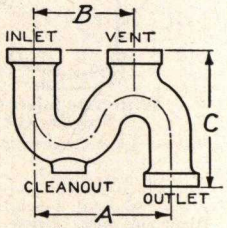
Half S-Traps
Fig. No. 748



P-Traps
Fig. No. 752



Three-Quarter S-Traps
Fig. No. 749



Full S-Traps
Fig. No. 750

Half S-Traps—Fig. No. 748

Size.....Inches	1¼	1½	2	3	4	5	6	8
Dimension A.....Inches	2 5/16	2½	3 1/16	4 3/16	5 1/8	6 1/16	6 9/16	8 15/16
Dimension B.....Inches	3 1/8	3 3/8	4	5 3/8	7	8 3/8	10 1/8	12 3/8
Dimension C.....Inches	2	2¼	2 9/16	3½	4 3/16	4 3/4	5 7/16	6¾
Size of Vent.....Inches	1¼	1½	2	3	4	4	4	6
Size of Cleanout.....Inches	¾	1	1	1¼	2	2	2	3
Fig. 748. Black.....Each	1.55	1.70	2.20	5.00	10.00	21.50	32.50	55.00
Galv.....Each	2.70	3.00	3.85	8.75	17.50	37.50	57.00	95.00

Outlets of Half S-Traps are tapped, pitched ¼-inch to the foot.

P-Traps—Fig. No. 752

Size.....Inches	1¼	1½	2	3
Dimension A.....Inches	1 15/16	2 1/8	2 9/16	3 3/8
Dimension B.....Inches	2	2¼	2¾	3¾
Dimension C.....Inches	¾	⅞	⅞	1 5/16
Size of Cleanout.....Inches	¾	1	1	1¼
Fig. 752. Black.....Each	$1.45	$1.55	$2.00	$4.70
Galvanized.....Each	2.55	2.70	3.50	8.25

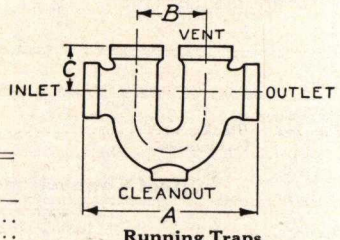
Outlets of P-Traps are tapped, pitched ¼-inch to the foot.

Three-Quarter S-Traps—Fig. No. 749

Size.....Inches	2	3	4	5	6
Dimension A.....Inches	5 15/16	8 1/16	10 5/8	12 9/16	15 13/16
Size of Vent.....Inches	2	3	4	4	4
Size of Cleanout.....Inches	1	1¼	2	2	2
Fig. 749. Black.....Each	$4.00	$ 9.25	$14.00	$21.00	$36.00
Galvanized.....Each	7.00	16.00	24.00	37.00	63.00

Full S-Traps—Fig. No. 750

Size.....Inches	1½	2	3	4	5	6
Dimension A.....Inches	7 1/16	8¼	10¾	14⅛	16¾	20¼
Dimension B.....Inches	5¼	6¼	8 1/16	10 5/8	12 9/16	15 13/16
Dimension C.....Inches	7⅞	8	11¼	13¾	16⅞	19¾
Size of Vent.....Inches	1½	2	3	4	4	4
Size of Cleanout.....Inches	1	1	1¼	2	2	2
Fig. 750. Black.....Each	$3.25	$4.00	$ 9.25	$14.00	$21.00	$36.00
Galvanized.....Each	5.75	7.00	16.00	24.00	37.00	63.00



Running Traps
Fig. No. 751

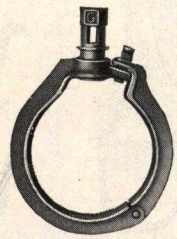
Running Traps—Fig. No. 751

Size.....Inches	1¼	1½	2	3	4	5	6	8	10
Dimension A.....Inches	7¾	8 3/8	10⅛	13¾	17¼	20½	23¼	30¼	.....
Dimension B.....Inches	3⅛	3 3/8	4	5 3/8	7	8 3/8	10⅛	12 3/8	.....
Dimension C.....Inches	2	2¼	2 9/16	3½	4 3/16	4¾	5 7/16	6¾	.....
Size of Vent.....Inches	1¼	1½	2	3	4	4	4	6	.....
Size of Cleanout.....Inches	¾	1	1	1¼	2	2	2	3	3
Fig. 751. Black.....Each	$2.40	$2.70	$3.30	$5.50	$ 9.75	$24.50	$33.50	$ 65.00	$115.00
Galvanized.....Each	4.20	4.70	5.75	9.50	17.00	43.00	58.50	115.00	200.00

Inlets and Outlets of Running Traps are tapped, pitched ¼ inch to the foot.
Dimensions subject to a slight variation and change without notice.

Grinnell Pipe Hangers and Supports

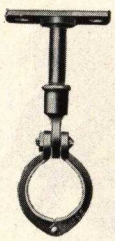

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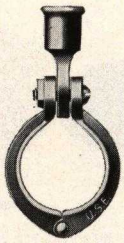

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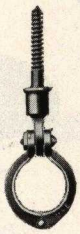

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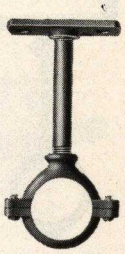

No. 106


No. 100


No. 127


No. 107


No. 109


No. 139

Adjustable Swivel Rings

Solid ring type, malleable iron, can be used with coach screw rod or machine threaded rod. Swivel shank automatically locks when pipe is in desired position.

Order Figure Number 101

Pipe Size, Inches	List Price Each	Size of Rod	Top of Nut on Shank to		
			Center of Pipe	Top of Pipe	Bottom of Pipe
¾	$ .18	⅜	3 1/8	2 9/16	3 5/8
1	.20	⅜	2 15/16	2 1/4	3 9/16
1¼	.21	⅜	3 1/4	2 3/8	4 1/16
1½	.22	⅜	3 1/4	2 5/16	4 3/16
2	.24	⅜	3 9/16	2 3/8	4 3/4
2½	.34	½	4 3/16	2 3/4	5 5/8
3	.42	½	4 9/16	2 13/16	6 5/16
3½	.44	½	4 3/4	2 3/4	6 3/4
4	.56	⅝	5 5/8	3 3/8	7 7/8
5	.70	⅝	6 3/16	3 7/16	9
6	1.08	¾	7 1/4	3 15/16	10 9/16
8	1.92	⅞	8 15/16	4 5/8	13 1/4

Split ring type, malleable iron. Swivel shank automatically locks when pipe is in desired position.

Order Figure Number 104

Pipe Size, Inches	List Price Each	Size of Rod	Top of Nut on Shank to		
			Center of Pipe	Top of Pipe	Bottom of Pipe
¾	$ .18	⅜	2 5/8	2 1/16	3 1/8
1	.20	⅜	2 3/4	2 1/16	3 3/8
1¼	.21	⅜	2 7/8	2	3 11/16
1½	.22	⅜	3	2	4
2	.24	⅜	3 3/8	2 3/16	4 9/16
2½	.34	½	3 15/16	2 1/2	5 3/8
3	.42	½	4 3/8	2 5/8	6 1/8
3½	.44	½	4 5/8	2 5/8	6 5/8
4	.56	⅝	5 11/16	3 7/16	7 13/16
5	.70	⅝	6 3/8	3 9/16	9 1/8
6	1.08	¾	7 1/2	4 3/16	10 13/16
8	1.92	⅞	8 15/16	4 5/8	13 1/4

Adjustable Clip

Malleable iron. Allows about 1½-inch adjustment. Has adjustable clip ring, clip base and square head hanger rod. Clip ring No. 105 can be purchased separately.

Order Figure Number 106

Pipe Size, Inches	List Price Each	Square Head Rod		Min.-Max. Distances Ceiling to Center of Pipe
		Length	Diameter	
¾	$ .18	6¼	⅜	8 – 9 5/8
1	.20	6¾	⅜	8½–10 1/8
1¼	.22	6¾	⅜	8¾–10 3/8
1½	.25	7	⅜	9 –10 5/8
2	.28	7¼	⅜	9½–11 1/8

Adjustable Coach Screw Clip

Malleable iron. Allows about 1½-inch adjustment. Consists of adjustable swivel ring, Figure No. 101 and coach screw rod.

Order Figure Number 100

Pipe Size, Inches	List Price Each	Coach Screw Rod		Min.-Max. Distances Ceiling to Center of Pipe
		Diameter	Length	
¾	$ .28	⅜	11	8 – 9 5/8
1	.30	⅜	11¼	8½–10 1/8
1¼	.31	⅜	11½	8¾–10 3/8
1½	.32	⅜	11½	9 –10 5/8
2	.34	⅜	11¾	9½–11 1/8

Split Pipe Ring with Socket and Ceiling Flange

Malleable iron, made up of combination split pipe ring and socket with pipe nipple and ceiling flange. List prices do not include nipples.

Order Figure Number 127

Pipe Size, Inches	List Price Each	Pipe Size Socket and Plate	Pipe Size, Inches	List Price Each	Pipe Size Socket and Plate
½	$ .15	⅛	3	$ .35	¼
¾	.18	⅛	3½	.50	⅜
1	.18	⅛	4	.60	⅜
1¼	.20	¼	5	.70	½
1½	.22	¼	6	.90	½
2	.25	¼	8	1.40	½
2½	.30	¼			

Split Pipe Ring with Socket

Socket threaded with standard pipe thread. Designed for use with pipe or pipe threaded coach screw. Malleable iron.

Order Figure Number 107

Split Pipe Ring with Socket and Threaded Coach Screw

Bolt and nut hold ring to socket and can be set in place after piping is installed

Order Figure Number 109

Pipe Size, Inches	List Price Each No. 107	List Price Each No. 109	Coach Screw Pipe Size	Length Coach Screw
½	$ .10	$ .15	⅛	3½
¾	.12	.18	⅛	3½
1	.12	.18	⅛	3½
1¼	.14	.20	¼	3½
1½	.16	.22	¼	3½
2	.18	.25	¼	3½
2½	.22	.30	¼	3½
3	.28	.35	¼	3½
3½	.43	.50	⅜	5
4	.53	.60	⅜	5
5	.63	.70	½	5
6	.82	.90	½	5
8	1.32	1.40	½	5

Ext. Split Ring with Ceiling Flange and Nipple

When hanger Fig. No. 139 is ordered complete, 4-inch nipple will be furnished. When other than 4-inch nipple is wanted, order Fig. No. 139-A and nipple separately.

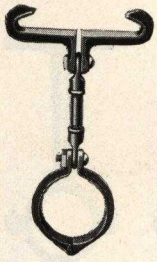
Order Figure Number 139 or 139-A

Specify Plain or Galvanized

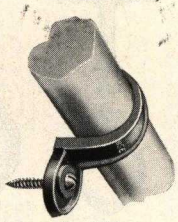
Pipe Size, Inches	LIST PRICE, EACH				Tapped Pipe Size, Inches
	Complete Fig. No. 139		Without Nipple Fig. No. 139-A		
	Plain	Galvanized	Plain	Galvanized	
⅜	$ .22	$ .25	$ .17	$ .20	¼
½	.22	.25	.17	.20	¼
¾	.27	.30	.22	.25	¼
1	.32	.35	.27	.30	¼
1¼	.35	.40	.30	.35	¼
1½	.40	.50	.35	.45	¼
2	.50	.60	.45	.55	¼
2½	.70	.80	.65	.70	½
3	.90	1.00	.80	.90	½
4	1.10	1.25	1.00	1.15	½
5	1.40	1.75	1.30	1.65	¾
6	1.90	2.25	1.80	2.15	¾

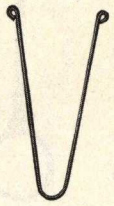
Hanger Catalogue furnished on request, giving List Prices, Description and Dimensions of the complete Grinnell line of Pipe Hangers and Supports. Mention Domestic Engineering Plumbing and Heating Catalog.

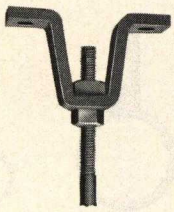
Grinnell Pipe Hangers and Supports

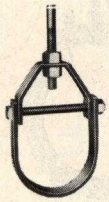

No. 132

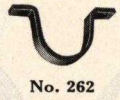

No. 133


No. 126


No. 205


No. 252


No. 260


No. 262


No. 263


No. 111

I-Beam Hanger

When ordering give ring size and I-beam clamp size desired. List prices do not include nipples. Made of malleable iron.

Order Figure Number 132

Pipe Size	List Price Each	Pipe Size for Socket	Pipe Size	List Price Each	Pipe Size for Socket
½	$ .55	⅛	2½	$ .70	¼
¾	.55	⅛	3	.75	¼
1	.58	⅛	3½	.90	⅜
1¼	.60	¼	4	1.00	⅜
1½	.62	¼	5	1.10	½
2	.65	¼	6	1.30	½

Spring Ceiling Plate

The plate is held to the rod by five steel points. Can be pushed up against ceiling but not pulled downward. Spring and plate are stamped from spring steel.

Order Figure Number 133

Size Rod	List Price, Each	Outside Diameter
⅜	$ .09	1 13/16
½	.145	2 3/16
⅝	.20	2½
¾	.27	2½

One Hole Clamp

Designed for supporting standard conduit, cable or wrought iron and steel pipe on walls or side of beams. Not recommended for use horizontally on ceilings, bottoms of beams, etc., as factor of safety is greatly reduced when so used.

Regularly furnished in plain black malleable iron finish. Can be furnished galvanized or other coatings only on order, and at an extra cost.

Made of malleable iron. Specify inside diameter of conduit or pipe or outside diameter of lead cable.

Order Figure Number 126

Conduit or Pipe Size Nominal Inside Diameter	List Price per 100	Cable Size or Outside Diameter of Conduit Inches	Diameter of Screw Hole	Size Expansion Shield or Screw Anchor
⅜	$ 4.80	.67	¼	3/16x1
½	6.00	.84	5/16	¼x1½
¾	7.20	1.05	5/16	¼x1½
1	9.60	1.31	5/16	¼x1½
1¼	16.80	1.66	⅜	¼x1½
1½	24.00	1.90	7/16	⅜x2
2	48.00	2.37	7/16	⅜x2
2½	72.00	2.87	11/16	⅝x3
3	96.00	3.50	11/16	⅝x3
3½	144.00	4.00	11/16	⅝x3½
4	156.00	4.50	11/16	⅝x3½

U Hook

Order Figure Number 205

Pipe Size Inches	List Price Each—Length, Inches						Size Iron	Size Screws
	6, 8	10, 12	14	16	18	20, 24		
¾-2	$ .05	$ .06	$ .07	$ .08	$ .08	$ .09	5/16	No. 16
2½, 3	.....	.11	.12	.13	.14	.17	⅜	⅜
3½, 4	.....	.15	.18	.21	.24	.30	7/16	½
5	.....	.28	.30	.32	.34	.41	9/16	½
6	.....	.35	.38	.41	.44	.48	⅝	½
8	.....	.....	.55	.60	.65	.80	¾	⅝

Adjustable Wrought U Pipe Hangers

Order Figure Number 252

Hanger No.	Pipe Size Inches	List Price Each	Rod Size	Size Coach Screws
1	¾–2	$ .15	⅜	5/16x1½
2	2½–3½	.20	½	7/16x2
3	4 –5	.23	⅝	½x2
4	6	.28	¾	⅝x3
5	8 –12	.36	⅞	¾x3

Adjustable Wrought Clevis Hangers

Order Figure Number 260

Size.....Inches	¾	1	1¼	1½	2	2½
List Price.....Each	$ .22	$ .24	$ .26	$ .29	$ .33	$ .40
Rod Size.....	⅜	⅜	⅜	⅜	⅜	½

Size.....Inches	3	3½	4	5	6	8
List Price.....Each	$ .48	$ .60	$ .70	$ .90	$1.00	$1.20
Rod Size.....	½	½	⅝	⅝	¾	⅞

Wrought Short Clips

Order Figure Number 262

Size.....Inches	¾	1	1¼	1½	2	2½	3	3½	4
List Price.....Each	$ .07	$ .08	$ .10	$ .12	$ .13	$ .18	$ .25	$ .28	$ .30
Size of Screws.....No.	14	14	14	18	18	18	18	18	18

Wrought Long Clips

Order Figure Number 263

Size.....Inches	¾	1	1¼	1½	2	2½	3	3½	4
List Price.....Each	$ .09	$ .10	$ .12	$ .15	$ .18	$ .25	$ .30	$ .35	$ .40
Size of Screws.....No.	14	14	14	18	18	18	18	18	18

Pipe Threaded Coach Screws

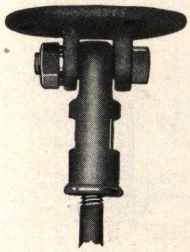
Manufactured for use with hanger Fig. No. 109. Coach screw end has gimlet point while opposite end has standard pipe thread.

Order Figure Number 111

No.	List Price	Size Pipe Thread	Length
1	$ .10	⅛	3½
2	.12	¼	3½
3	.14	⅜	5
4	.20	½	5

Hanger Catalogue furnished on request, giving List Prices, Description and Dimensions of the complete Grinnell line of Pipe Hangers and Supports. Mention Domestic Engineering Plumbing and Heating Catalog.

Grinnell Pipe Hangers and Supports


No. 155

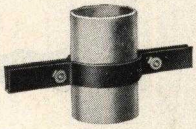

No. 134



No. 280



No. 281


No. 261

Adjustable Swinging Hanger Flanges

No. 1 Flanges have 2 Holes for Wood Screws.
Nos. 2, 3, 4 and 5 Flanges have 3 Holes for Coach Screws.

Order Figure Number 155

Size Number	1	2	3	4	5
Pipe Size	¾–2	2½–3½	4–5	6	8–12
List Price.....Each	$ .22	$ .37	$ .55	$ .68	$1.00
Rod Size	⅜	½	⅝	¾	⅞
Size of Screws	1½x18	⅜x2	½x2	9/16x2	⅝x2

Adjustable Swivel Couplings

Shank and Socket are two features but are cast as one unit. Swivel automatically locks when pipe is in desired position.

Order Figure Number 134

Size Number	1	2	3	4	5
List Price.....Each	$ .25	$ .35	$ .45	$ .60	$ .85
Size, Rod Tappings	⅜	½	⅝	¾	⅞
Length Overall	2⅝	3⅛	4	4⅝	5 7/16

Universal Concrete Insert

Malleable Iron

The Universal Insert, which has a 1½-inch lateral adjustment, is manufactured in one body size only to accommodate a special removable nut. Nut can be furnished with ⅜", ½", ⅝", or ¾" rod tapping as required. Nuts are automatically locked laterally in the insert by means of serrated teeth on both insert and nut.

Order Figure Number 280

List Price, Each, with one nut.....$ .20

U. F. S. I-Beam Clamps

*Size No. 3 U. F. S. I-Beam Clamps can be furnished to order tapped for Rods smaller than 1-inch, when necessary to support Pipes 12-inches or smaller from I-Beams having flange widths greater than 7¼-inches.

Hanger Rods and Hex Nuts to be ordered separately.

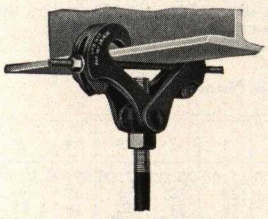
Order Figure Number 228

Clamp Size No.	List Price Each	Hanger Rod Size	Minimum Length Thread on Hanger Rod	Nominal Pipe Sizes	Maximum Beam Flange	
					Width	Thickness
1	$2.00	⅜ ½ ⅝	4¼ 4¼ 4½	¾– 2 2½– 3½ 4 – 5	7.25	0.60
2	2.75	¾ ⅞	5 5	6 8 –12	7.25	0.60
3	5.00	*½–⅞ 1 1⅛ 1¼ 1½	7⅞ 7⅞ 7⅞ 8⅛ 8⅜	2½–12 14 –16 18 20 24	10.59	1.031

Pipe Saddle Supports

Order Figure Number 258

Pipe Size..	4	5	6	8	10	12	14-O. D.	16-O. D.	18-O. D.	20-O. D.	24-O. D.	30-O. D.
List Price Each...	.95	1.20	1.40	2.10	2.60	2.75	3.10	4.10	5.10	6.40	8.65	12.00
Size Riser Pipe....	3	3	3	3	3	3	4	4	4	6	6	6
O. D. Base Flange..	9	9	9	9	9	9	11	11	11	13½	13½	13½


No. 228


No. 258

Simplex Concrete Inserts

Malleable Iron

The Simplex Insert is similar in design to, and has most of the advantages of the Universal Insert. The chief difference is that the nut in the Simplex is not removable and a different size body is furnished for each size tapping.

*The ⅞-inch Simplex Insert should always have reinforcing rods placed under upper flange to spread the load over a greater area.

Order Figure Number 281

Rod Size	⅜	½	⅝	¾	*⅞
List Price, Each	$ .14	$ .16	$ .18	$ .20	$ .22
Pipe Size	¾–2	2½–3½	4–5	6	8–12
Lateral Adjustment	1½	1½	1½	1⅜	1⅜

Extension Pipe Clamps or Riser Clamps

Extension Pipe Clamps are used as Riser Clamps for supporting or steadying Steel Pipe Risers or Soil Pipe. Also used to support Asbestos or other types of Pipe Covering. Can be used interchangeably on either Steel Pipe or Cast Iron Soil Pipe, making it necessary to carry but one type of Clamp for both purposes.

Order Figure Number 261

Pipe Size Inches	Price Each	Length	Size Bolts	Pipe Size Inches	Price Each	Length	Size Bolts
¾	$ .50	9⅜	⅜x1¼	5	$ .90	14½	½x1½
1	.50	9⅜	⅜x1¼	6	1.15	15½	½x1½
1¼	.55	10	⅜x1¼	8	1.45	18½	⅝x2
1½	.55	10⅜	⅜x1¼	10	1.90	20¾	⅝x2
2	.60	10¾	7/16x1½	12	2.20	22¾	⅝x2½
2½	.65	11¼	7/16x1½	14-O. D.	2.50	24	⅝x2½
3	.70	12	7/16x1½	16-O. D.	5.60	26	¾x3
3½	.75	13	½x1½	18-O. D.	6.20	28	¾x3
4	.80	13½	½x1½	20-O. D.	6.80	30	¾x3

Pipe Stanchion Saddles

Order Figure Number 259

Pipe Size..	4	5	6	8	10	12	14-O. D.	16-O. D.	18-O. D.	20-O. D.	24-O. D.	30-O. D.
List Price Each...	3.50	3.75	4.00	4.50	6.00	6.50	8.00	9.00	11.00	15.00	19.00	24.00
Size Riser Pipe....	3	3	3	3	3	3	4	4	4	6	6	6
O. D. Base Flange..	9	9	9	9	9	9	11	11	11	13½	13½	13½

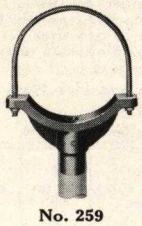
Adjustable Wrought Pipe Clamps

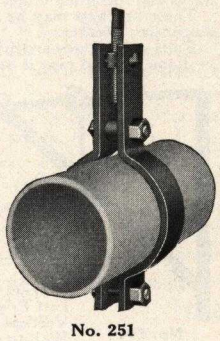
The Adjustable Wrought Pipe Clamp, Fig. No. 251, consists of two half-bands bolted together and a U. F. S. (lower) forged steel Nut, Fig. No. 250, threaded Left Hand. This Pipe Clamp is for use with Hanger Rods threaded Right and Left. Adjustment is obtained by turning hanger rod. Left Hand Nut will, when specified, be furnished with set screw to prevent Hanger Rod from turning.

Order Figure Number 251

Pipe Size	1½	2	2½	3	3½	4	5	6
List Price..Ea.	$ .65	$ .70	$ .75	$ .90	$1.00	$1.15	$1.35	$1.60
Rod Size	⅜	⅜	½	½	½	⅝	⅝	¾

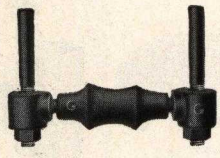
Pipe Size	8	10	12	14-O.D.	16-O.D.	18-O.D.	20-O.D.	24-O.D.
List Price..Ea.	$2.25	$3.00	$4.00	$6.00	$8.00	$10.00	$12.00	$14.00
Rod Size	⅞	⅞	⅞	1	1	1⅛	1¼	1½


No. 259

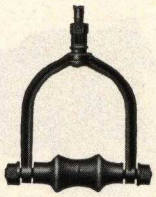

No. 251

Hanger Catalogue furnished on request, giving List Prices, Description and Dimensions of the complete Grinnell line of Pipe Hangers and Supports. Mention Domestic Engineering Plumbing and Heating Catalog.

Grinnell Pipe Hangers and Supports



No. 171



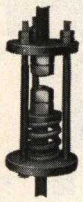
No. 174



No. 177



No. 256



No. 255

Single Pipe Rolls

Single and Branch Pipe Rolls are especially designed to take care of expansion and contraction. Rolls are made hollow which means small surface in contact with rod.

The Adjustable Sockets permit vertical adjustment at the roll. The nut at the bottom of the hanger rod fits into a recess in the socket thus preventing loosening or turning from vibration.

Hanger Rods and nuts are to be ordered separately.

Order Figure Number 171

Pipe Size	1	1¼	1½	2	2½	3	3½	4	5	6	7
List Price...Each	.35	.35	.35	.40	.40	.45	.45	.45	.65	.75	.85
Rod Size	⅜	⅜	⅜	⅜	½	½	½	⅝	⅝	¾	¾

Pipe Size	8	9	10	12	14	15	16	18	20	24	30
List Price...Each	1.25	1.80	2.20	3.50	4.00	5.00	6.00	8.00	12.00	15.00	24.00
Rod Size	⅞	⅞	⅞	⅞	1	1	1	1⅛	1¼	1½	1⅞

Adjustable Swivel Pipe Rolls

The Adjustable Swivel Pipe Roll supplies the need for an adjustable type of pipe roll hanger with single hanger rod. It is unique inasmuch as vertical adjustment can be made by use of the Swivel Shank at the top of the hanger. The Swivel Shank automatically locks, preventing loosening due to vibration in the pipe line.

Order Figure Number 174

Pipe Size	2½	3	3½	4	5	6	7	8	10	12
List Price..Each	$1.00	$1.25	$1.50	$1.75	$2.50	$2.75	$3.50	$4.25	$5.00	$6.00
Rod Size	½	½	½	⅝	⅝	¾	¾	⅞	⅞	⅞

Pipe Roll Chairs

Pipe Roll Chairs are for use in supporting piping when adjustment is not necessary but where provision must be made for expansion and contraction.

Order Figure Number 177

Pipe Size	2	2½	3	3½	4	4½	5	6	7
List Price...Each	$0.35	$0.40	$0.50	$0.60	$0.80	$0.95	$1.00	$1.40	$1.60

Pipe Size	8	9	10	12	14	15	16	18	20
List Price...Each	$2.00	$2.75	$4.00	$5.50	$7.25	$10.50	$14.00	$18.00	.....

Steel Bracket Clips

Order Figure Number 193

Clip Number	1	2
List Price...Each	$0.25	$0.30
Pipe Size	¾–2	2½–3½
Rod Size	⅜	½

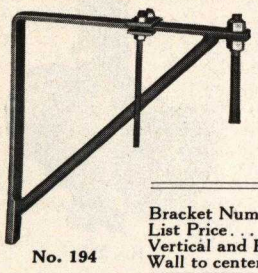
Light Welded Steel Brackets

Maximum Load—750 Pounds

Light Welded Steel Brackets, Fig. No. 194, are designed to support pipe lines up to and including 6 inches in size.

These brackets may be installed either in position illustrated or reversed as a suspension bracket.

Ends of Brackets are drilled to take hanger rods up to and including ¾ inches in diameter, and pipe is ordinarily suspended from this point.



No. 194

It is possible, however, to hang pipes 3½-inches and smaller from any other point on the horizontal member by using Steel Bracket Clips, Fig. No. 193, as illustrated. These Clips are made in two sizes as listed in table above. Each Clip consists of two steel plates and one bolt and nut.

Hanger Rods and Hex Nuts to be ordered separately.

Order Figure Number 194

Bracket Number	1	2	3
List Price...Each	$5.00	$5.50	$6.00
Vertical and Horizontal Length	9	13	19
Wall to center of Rod	8	12	18

Spring Pipe Roll Hangers

Spring Pipe Roll Hangers are a convenient means for absorbing vibration which is often conveyed to piping lines from various causes.

Hanger Rods and Hex Nuts are not included in price of Spring Pipe Roll Hanger and are to be ordered separately.

Order Figure Number 256

Pipe Size	1	1¼	1½	2	2½	3	3½	4	5	6
List Price..Each	$1.00	$1.00	$1.00	$1.05	$1.40	$1.45	$1.45	$2.20	$2.40	$2.85
Rod Size	⅜	⅜	⅜	⅜	½	½	½	⅝	⅝	¾

Pipe Size	7	8	9	10	12	14	16	18	20	24
List Price..Each	2.95	3.90	4.45	4.85	6.15	7.75	9.75	12.15	16.55	20.80
Rod Size	¾	⅞	⅞	⅞	⅞	1	1	1⅛	1¼	1½

Spring Pipe Hangers

Spring Pipe Hangers are a convenient means for absorbing vibration which is often conveyed to piping lines from various causes.

Center or Hanger Rods with Hex Nuts are not included in price of Spring Pipe Hangers, and are to be ordered separately.

Order Figure Number 255

Pipe Size	1–2	2½–3½	4–5	6	8–12	14–16	18	20	24
Size Number	1	2	3	4	5	6	7	8	9
List Price.....Each	$1.50	$2.00	$2.50	$3.00	$3.75	$4.25	$5.00	$7.00	$8.00
Rod Size	⅜	½	⅝	¾	⅞	1	1⅛	1¼	1½

Medium Welded Steel Brackets

Maximum Load—1,500 Pounds

When Brackets are to be bolted to walls, Back Plates must be ordered of such size and thickness as to properly distribute the weight over the wall. Size and thickness of back plates will, of course, be governed by the load to be carried and the nature and condition of the wall.

Order separately, the bolts and nuts and back plates for fastening the brackets to wall, specifying the size and length of bolts and the size, thickness and drilling of the plates.

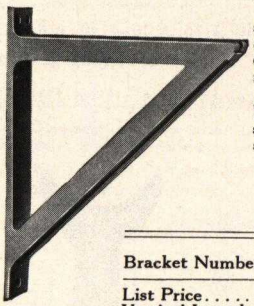
Order Figure Number 195

Bracket Number	0	1	2
List Price.....Each	$11.00	$14.00	$17.00
Vertical Length	18	24	30
Horizontal Length	12	18	24
Width	4	4½	5

Heavy Welded Steel Brackets

Maximum Load—3,000 Pounds

When brackets are to be bolted to walls, Back Plates must be ordered of such size and thickness as to properly distribute the weight over the wall. Size and thickness of back plates will, of course, be governed by the load to be carried and the nature and condition of the wall.



Nos. 195 and 199

In addition to back plates, it may be necessary in some cases to insert a steel plate or angle iron in the wall on which the upper bolts can rest, in order to spread the load over a greater wall area.

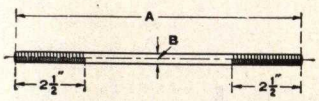
Order separately, the bolts and nuts and back plates for fastening the brackets to wall, specifying the size and length of bolts and the size, thickness and drilling of the plates.

Order Figure Number 199

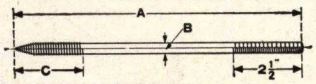
Bracket Number	0	1	2	3	4	5
List Price.....Each	15.00	17.00	20.00	22.00	30.00	36.00
Vertical Length	18	24	30	36	42	50
Horizontal Length	12	18	24	30	36	42
Width	4	5	5	5	6	6

Hanger Catalogue furnished on request, giving List Prices, Description and Dimensions of the complete Grinnell line of Pipe Hangers and Supports. Mention Domestic Engineering Plumbing and Heating Catalog.

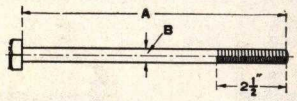
Grinnell Pipe Hangers and Supports



R. H. Threads—No. 140
R. & L. Threads—No. 253



No. 142



No. 141

Hanger Rods—Machine Threaded

Hanger rods with machine thread 2½ inches on one or both ends as listed. Special lengths can be furnished at price for next length listed above length ordered. Additional charge for rods with threads longer than 2½ inches. No. 140—R. H. threaded both ends. No. 141—R. H. threaded one end. No. 253—R. & L. threaded. No. 254—L. H. threaded one end.

Length A Inches	Size B								
	⅜	½	⅝	¾	⅞	1	1⅛	1¼	1½
8	$0.08	$0.10	$0.18	$0.25	$0.30	$0.35	$0.45	$0.60	$0.80
10	.08	.10	.18	.25	.30	.35	.45	.60	.80
12	.08	.10	.18	.25	.30	.35	.45	.60	.80
14	.10	.14	.24	.30	.40	.50	.65	.85	1.10
18	.10	.14	.24	.30	.40	.50	.65	.85	1.10
24	.12	.17	.30	.38	.50	.60	.75	1.00	1.35
30	.14	.20	.36	.45	.60	.75	.95	1.25	1.60
36	.16	.23	.42	.50	.70	.90	1.10	1.45	1.90
42	.18	.26	.48	.60	.80	1.00	1.30	1.70	2.20
48	.20	.29	.54	.65	.90	1.15	1.50	1.90	2.45
54	.22	.32	.60	.75	1.00	1.25	1.60	2.10	2.70
60	.24	.35	.66	.80	1.10	1.35	1.75	2.30	3.00
66	.26	.38	.72	.90	1.20	1.50	1.90	2.50	3.30
72	.28	.41	.78	.95	1.30	1.60	2.10	2.75	3.60

Coach Screw Rods

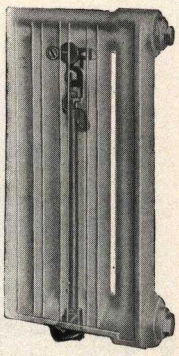
Coach screw rods with or without machine thread 2½ inches long on opposite end as listed. See above for ordering special lengths and extra length threads. No. 142—Threaded on opposite end. No. 143—Not threaded on opposite end.

Length A Inches	Size B				
	⅜	½	⅝	¾	⅞
8	$0.06	$0.09	$0.13	$0.14	$0.20
10	.06	.09	.13	.14	.20
12	.06	.09	.13	.14	.20
14	.08	.12	.17	.19	.27
18	.08	.12	.17	.19	.27
24	.10	.15	.21	.24	.34
30	.12	.18	.25	.29	.41
36	.14	.21	.29	.34	.48
42	.16	.24	.33	.39	.55
48	.18	.27	.37	.44	.62
54	.20	.30	.41	.49	.69
60	.22	.33	.45	.54	.76
66	.24	.36	.49	.59	.83
72	.26	.39	.53	.64	.90
Dimension C.	2 in.	2 7/16 in.	2 9/16 in.	2 9/16 in.	.....

Square Head Hanger Rods

Used in connection with adjustable clip base. Also with other types of hangers. With or without machine thread. See above regarding extra lengths and threads. No. 144—Threaded. No. 145—Not threaded.

Length A Inches	Size B				
	⅜	½	⅝	¾	⅞
8	$0.05	$0.07	$0.10	$0.15	$0.26
10	.05	.08	.12	.17	.32
12	.06	.10	.14	.19	.36
14	.06	.11	.15	.22	.40
18	.07	.13	.19	.27	.50
24	.09	.17	.24	.34	.66
30	.10	.21	.29	.42	.80
36	.12	.25	.35	.49	.95
42	.13	.28	.40	.57	1.10
48	.15	.32	.45	.63	1.25
54	.16	.35	.50	.70	1.40
60	.18	.40	.55	.78	1.55
66	.19	.43	.60	.85	1.70
72	.22	.47	.66	.93	1.85



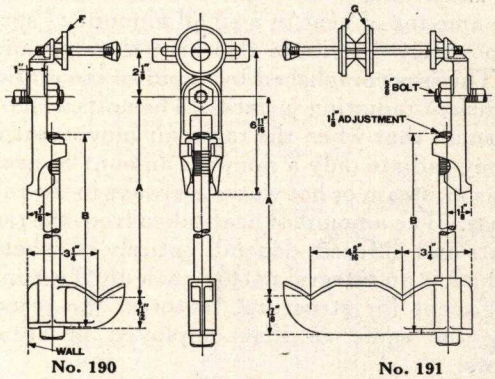
No. 190

Adjustable Wall Radiator Brackets

Only one bolt is necessary to securely fasten the Bracket to the wall. The screw at top of Bracket is adjustable and will always strike between the bars of the Radiator.

Bracket No. 190 is for a single tier of Radiation. Bracket No. 191 will support two tiers, one in front of the other.

Special applications of the Brackets may be used to support two or more vertical tiers of radiation. Prices on application.



No. 190 No. 191

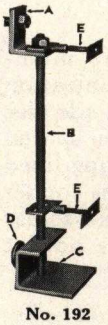
$2.50.....List Prices, Each.....$3.25

Order by Number. State make and size or figure number of Radiation.

Make and Type	Amer. Rad. Co. Peerless / U. S. Rad. Co. Triton			Pierce, Butler & Pierce Mfg. Corp. Pierce			H. B. Smith Co. Princess	
Radiator Size	5-A 7-A 9-A	7-B	9-B	5 ft. Vert. 9 ft. Hor.	7 ft. Vert.	9 ft. Vert.	15 in.	22 in.
Max. A...	7¼	15¼	22¼	7¼	15¼	22¼	7¼	15¼
B...	7	15	22	7	15	22	7	15

Adjustable Wrought Radiator Brackets

For Tube Type Radiators



No. 192

These Brackets are designed for supporting legless radiators of the new tube type and are made in but one size to take all widths from 3-tube to 7-tube, inclusive.

Only one bolt is necessary to fasten the Bracket to the wall.

Ample horizontal adjustment is provided for by the slotted cleats on tie rods E, and by the width of foot C, as the tie rods will always strike between the sections of the radiator no matter where the bracket is placed. Steel plates on tie rods E bear against the front of second tube to hold radiator in place.

The back stop D is for use on walls where there is no baseboard or where the entire bracket is above the baseboard. When foot C will rest against a baseboard, the back stop is to be discarded.

Clearance from wall to back of radiator is 2¾ inches.

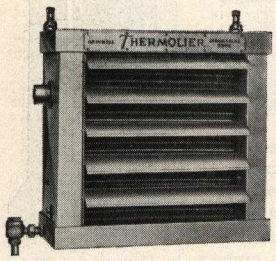
Order Figure Number 192. State nominal height of Radiators.

List Price, Each.....**$2.00**

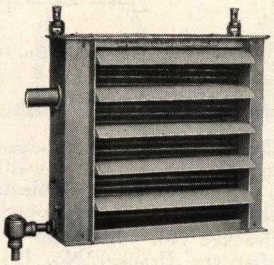
Hanger Catalogue furnished on request, giving List Prices, Description and Dimensions of the complete Grinnell line of Pipe Hangers and Supports. Mention Domestic Engineering Plumbing and Heating Catalog.

Grinnell Thermolier—Industrial and Factory Types

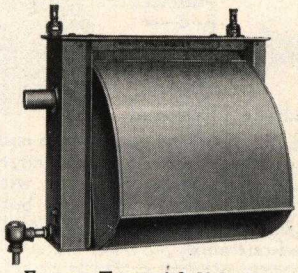
125 lbs. Working Steam Pressure



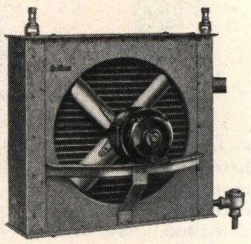
Industrial Type
(Front View)



Factory Type
(Front View)



Factory Type with Velocity
Nozzle



Factory Type
(Rear View)

The underlying principle in unit heating is to produce a large amount of heat in a small amount of space and then to widely distribute this heat through air movement. This is accomplished by rapid air circulation over very efficient radiating surfaces. The units which do this are so small that when the rapid air movement is stopped, they radiate only a nominal amount of heat. For this reason, steam or hot water is always in the radiating elements. The amount of heat taken from the radiating elements and diffused, depends entirely on whether the fan (which is an integral part of each unit) is running or not. Except for structural features, the principle is exactly the same as that employed in automobile radiators.

This principle of heating is revolutionary in that it provides the acme of comfort at a cost substantially less that that of an ordinary direct steam system and at a mere fraction of the cost of systems that would provide anything approaching the same result in comfort by means of central or automatic control. It further provides almost instantaneous heat, which it is quite impossible to obtain with cast iron radiation or coils.

The Grinnell Thermolier is a modern and exceptionally rugged "unit heater," a type of heater which is rapidly becoming standard for use in industrial buildings, garages and some classes of commercial structures. The reason for this is apparent when it is realized that a Model 800 Thermolier weighing approximately 200 lbs. does the work of more than 5,000 lbs. of cast iron radiation and occupies a space of less than 8 cu. ft.

This unit is the result of more than two years' intensive investigation and test by the Grinnell organization which for over 70 years has been recognized as a leader in industrial heating work. No pains have been spared to make it a most dependable, efficient and long-lived unit. Radiation is from brass-finned seamless copper U-tubes rolled into a cast iron tube sheet. No solder is used for strengthening joints and there are no flat horizontal surfaces to catch dirt.

Units may be controlled manually or automatically, singly or in groups. Installation and piping are extremely simple and inexpensive, hence the unit may be moved from one location to another at small cost if found desirable on account of changes in building or occupancy. Furnished in sizes as listed on following page.

Thermoliers provide maximum distribution of heat without objectionable drafts.

Specifications

Fan: Grinnell Special of rugged construction. Motor: heavy duty, oversize, enclosed, moisture-proof. Housing: Copper on Industrial Type with rubbed lacquer finish; steel on Factory Type finished in gray duco. Frame: Heavy pressed steel, providing rugged support for motor and fan. Special features: Adjustable swivel hanger rod couplings; louvers rigid, but easily adjustable; integral cooling leg insuring perfect drainage through one ½-inch trap on Models 100 and 200, ¾-in. on Models 300 to 800, 1-in. on Model 1200, 1¼-in. on Model 1600 for pressures up to 25 lbs. For pressures not exceeding 125 lbs., a thermostatic trap of proper construction can be used and should be attached directly to the unit; same sizes as above except a ½-in. trap on Models 300 and 400, 1-inch trap on Model 1600.

Types and Models

Thermolier is made in two types (Industrial and Factory) and 16 models (or capacities). The Industrial and Factory types are essentially the same, the only difference being in the housing. The Industrial Type is encased in a polished copper housing which adds greatly to the appearance and makes it particularly appropriate where finished appearance is a consideration. The Factory Type is encased in a housing of steel and is finished in gray duco.

The Industrial and Factory type Thermoliers are made in regular and "A" models (the latter being a unit of less heating surface).

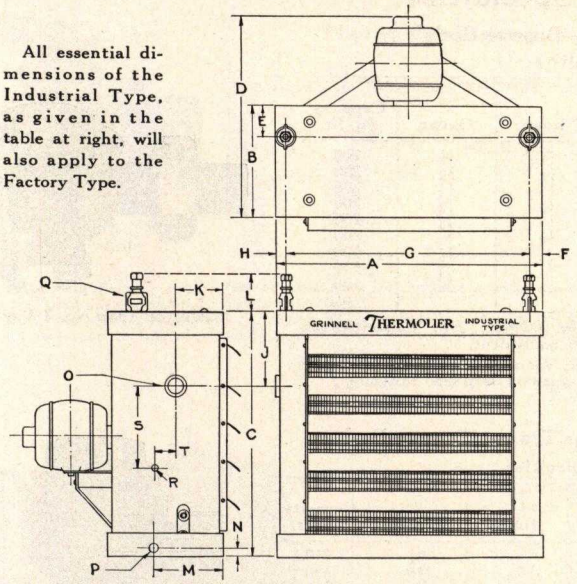
Sizes of all Models and B. t. u. ratings at 5 lbs., steam pressure are given on following page.

Grinnell Velocity Nozzles are designed for attachment to either the Industrial or Factory Types of Grinnell Thermoliers, and are adjustable. Furnished in Copper to match the Industrial Type Units and in Steel, Duco Finish, for the Factory Type.

Grinnell Velocity Nozzles are intended for use under extreme conditions or where Thermoliers are located in very high buildings. Under most conditions, however, Velocity Nozzles should not be required.

Grinnell Thermolier—Industrial and Factory Types

All essential dimensions of the Industrial Type, as given in the table at right, will also apply to the Factory Type.



Dimensions—Industrial Type

Model Numbers	100, 100A 200, 200A	300, 300A 400, 400A	600, 600A 800, 800A	1200, 1200A 1600, 1600A
A	14 1/4	21 1/8	27 3/4	36 1/2
B	8 1/2	10 7/16	11 7/8	12 3/4
C	11 3/4	18 7/16	25 1/2	32 5/8
D	*15	*17	*21	*25
E	2 3/16	2 15/16	3 7/8	4 1/4
F	15/16	1	1 11/16	1 1/2
G	12 5/8	19 1/8	24 7/8	33 11/16
H	11/16	1	1 3/16	1 1/4
J	2 3/4	3 3/4	7 5/8	9 7/16
K	3 1/4	4 1/16	4 7/8	5 3/16
L	2 5/8	3 1/8	4	5 7/16
M	5 11/16	6 5/8	6 7/8	6 7/8
N	13/16	13/16	1 1/16	1 1/4
O-Supply	1 1/4	1 1/2	2	2 1/2
P-Return	1/2	3/4	‡1	‡1 1/4
Q	†3/8	†1/2	†5/8	†7/8
R-Vent	3/8	3/8	3/8	3/8
S	4 1/2	7 3/16	10 7/8	12 5/8
T	2 1/16	2 3/8	2	1 3/4
No. of Louvers	4	4	5	6

All dimensions given in inches.
*This dimension varies slightly with different motors.
‡Outlets bushed to pipe size next smaller than indicated in table.
†Adjustable swivel coupling (furnished with Thermolier) tapped standard bolt thread.
Air Vent "R" is furnished 3/8-in. but can be bushed as required.

Capacities—Standard Units

At 5 Lbs. Steam Pressure

Model Numbers	B.t.u. per Hour at Entering Air Temperatures of			
	40 Deg. F.	60 Deg. F.	70 Deg. F.	80 Deg. F.
100	28,200	24,500	22,700	21,000
200	37,900	32,900	30,500	28,200
300	95,000	82,300	76,100	70,400
400	127,000	110,800	103,000	95,100
600	182,400	159,500	147,100	134,800
800	227,100	199,100	183,800	168,600
1200	358,000	311,000	289,000	267,000
1600	446,000	388,000	360,000	334,000

Capacities—"A" Units

At 5 Lbs. Steam Pressure

Model Numbers	B.t.u. per Hour at Entering Air Temperatures of			
	40 Deg. F.	60 Deg. F.	70 Deg. F.	80 Deg. F.
100A	20,700	18,000	16,700	15,400
200A	27,400	24,000	22,300	20,600
300A	65,400	56,900	52,900	48,800
400A	83,700	73,400	68,400	63,500
600A	121,000	105,000	98,000	90,500
800A	141,500	123,000	115,000	106,500
1200A	237,000	207,000	192,000	178,000
1600A	281,500	246,000	229,500	213,000

Data Book covering other pressures and temperatures and complete installation information on application.

NEW LIST PRICES

Effective April 15, 1932

Factory Type Units—Complete with Steel Housing and Louvers Finished in Gray Duco

With Multi-Speed Motors

Electrical Current Characteristics	Number of Speeds	MODEL NUMBERS									
		100A	100	200A	200	300A 400A	300 400	600A 800A	600 800	1200A 1600A	1200 1600
115 Volt D. C.	6–8	$70.00	$80.00	$70.00	$80.00	$110.00	$125.00	$150.00	$183.00	$250.00	$315.00
230 Volt D. C.											
110 or 220 Volt 60 Cy. 1 Ph.	3	.....	.....	.....	.....	110.00	125.00	150.00	183.00	250.00	315.00
110 Volt 60 Cy. 1 Ph.	2	.....	.....	70.00	80.00	106.00	120.25	144.50	176.25	240.75	303.25
220 Volt 60 Cy. 1 Ph.											

List Prices for Multi-Speed Motors include—Rheostat for D. C. Motors—Control Box for A. C. Motors.

With Constant Speed Motors

115 Volt D. C.										
230 Volt D. C.										
110 Volt 60 Cy. 1 Ph.	$64.75	$74.00	$64.75	$74.00	$101.75	$115.75	$138.75	$169.25	$231.25	$291.50
220 Volt 60 Cy. 1 Ph.										
110 Volt 60 Cy. 3 Ph.										
220 Volt 60 Cy. 3 Ph.	.....	.....	66.50	76.00	104.50	118.75	142.50	174.00	237.50	299.25
440 Volt 60 Cy. 3 Ph.										
550 Volt 60 Cy. 3 Ph.	.....	.....	.....	.....	104.50	118.75	142.50	174.00	237.50	299.25

Industrial Type Units—Complete with Copper Housing and Louvers

Add to FACTORY TYPE List Prices given above	$8.00	$8.00	$8.00	$8.00	$10.00	$10.00	$15.00	$15.00	$30.00	$30.00

Thermoliers with Velocity Nozzles

*Add to Respective List Prices given above	FACTORY TYPE Steel Nozzle	$8.00	$8.00	$8.00	$8.00	$8.00	$8.00	$10.00	$10.00	$15.00	$15.00
	INDUSTRIAL TYPE Copper Nozzle	12.00	12.00	12.00	12.00	12.00	12.00	15.00	15.00	25.00	25.00

*Extra List Prices for Velocity Nozzles include adjustment for omission of Louvers.
Prices on application for—Units with Multi-Speed Polyphase Motors.
Units with Motors of Electrical Current Characteristics not listed above.

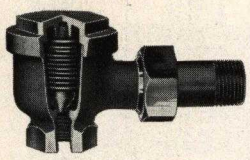
Engineering Service

While this type of heating is comparatively simple to lay out, there are certain methods of placing Thermoliers with reference to exposures, drafts and working conditions which greatly increase the efficiency and comfort obtained from them. In order to co-operate most with architects, engineers, etc., Grinnell Company, Inc. maintains in each of its principal plants a complete heating organization which is at the disposal of its customers in Thermolier installation.

Thermoflex Heating Specialties

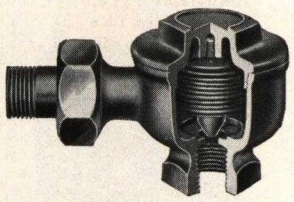
Thermoflex Radiator Traps—Bronze Body

List Prices and Capacities



Radiator Trap No. 12 Angle

Size and Number	List Price Each	Inlet	Outlet	Capacity Sq. Ft.
½-in.—No. 12 Angle	$ 7.00	½	½	200
½-in.—No. 12 R. H. Corner	7.00	½	½	200
½-in.—No. 12 L. H. Corner	7.00	½	½	200
½-in.—No. 2 Angle	8.50	½	¾	200
½-in.—No. 2 Straightway	8.50	½	¾	200
½-in.—No. 2 Offset	8.50	½	¾	200
¾-in.—No. 2 Angle	12.00	¾	¾	500
¾-in.—No. 2 Straightway	12.00	¾	¾	500
¾-in.—No. 2 Offset	12.00	¾	¾	500



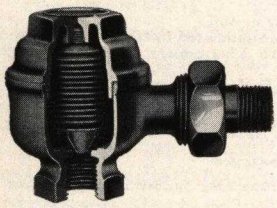
Radiator Trap No. 2 Angle

No. 2 Offset Trap has same offset feature as the No. 3 Offset Trap. Capacities are given in square feet of direct cast iron radiation or its equivalent.

For Pressure Steam Heating (up to 25 lbs.), Vapor, Vacuum and all systems where traps are used, on every radiator or outlet. Also for drips on drop-feed run-outs.

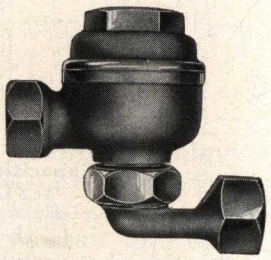
Thermoflex High Duty Radiator Traps—Bronze Body

List Prices and Capacities



Radiator Trap No. 3 Angle

Size and Number	List Price Each	Inlet	Outlet	Capacity Sq. Ft.
½-in.—No. 3 Angle	$10.00	½	¾	350
½-in.—No. 3 Straightway	10.00	½	¾	350
½-in.—No. 3 Offset	10.00	½	¾	350
¾-in.—No. 3 Angle	13.50	¾	¾	800
¾-in.—No. 3 Straightway	13.50	¾	¾	800
¾-in.—No. 3 Offset	13.50	¾	¾	800



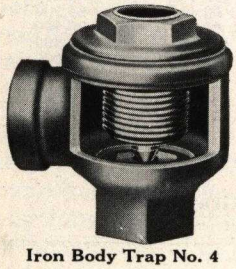
Radiator Trap No. 3 Offset

Capacities are given in square feet of direct cast iron radiation or its equivalent.

For Vacuum, Vapor or Pressure Steam Heating (up to 25 lbs.); for connections to every radiator; for drips at bottom of risers and on drop-feed run-outs; for return connection to Thermolier—the Grinnell Unit Heater.

Thermoflex Iron Body Traps

List Prices and Capacities



Iron Body Trap No. 4

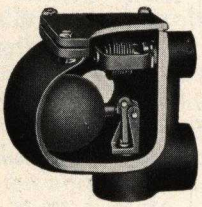
Size and Number	List Price Each	Inlet	Outlet	Capacity Sq. Ft.
¾-in.—No. 4	$11.00	¾	¾	800
1 -in.—No. 4	16.75	1	1	1350
1¼-in.—No. 4	20.00	1¼	1¼	1800

Capacities are given in square feet of direct cast iron radiation or its equivalent.

For Vacuum, Vapor or Pressure Steam Heating (up to 25 lbs.), on drips of supply mains and risers, pipe coils, Thermoliers (the Grinnell Unit Heaters), Unit Ventilators, etc. Also for return connection to dryer coils, process kettles and for other industrial uses where pressures of steam do not exceed 25 lbs.

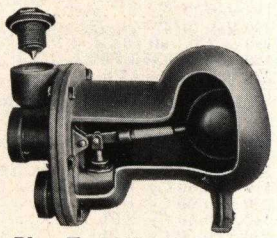
Thermoflex Blast Traps—Iron Body

List Prices and Capacities



Blast Trap No. 0

Number		List Price Each		Inlet	Outlet	Capacity
0–25 lbs.	25–100 lbs.	0–25 lbs.	25–100 lbs.			
0	0—1	$30.00	$30.00	2—1¼	2—1¼	650
1	1—1	60.00	65.00	1	¾	1000
2	2—1	70.00	75.00	1¼	1	2000
3	3—1	85.00	90.00	1½	1¼	3000



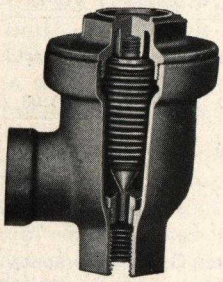
Blast Traps Nos. 1, 2 and 3

Capacities are given in lbs. of water per hour at 2 lbs. pressure. Higher pressures will give resultant higher capacities.

For all types of Unit Heaters, particularly header to header type; all cast iron and light weight types of hot blast radiation; hot water storage tanks, hot water generators, large supply mains and risers, dryer coils, etc.; especially for conditions where extremely large quantities of condensate must be handled.

Thermoflex High Pressure Traps

List Prices and Capacities



High Pressure Trap No. 100

Size Inches	List Price Each		Inlet	Outlet	Capacity lbs. per hour
	Plain Nickel	Polished Nickel or Chromium			
½	$15.00	$16.50	½	½	500
¾	20.00	21.50	¾	¾	650
1	25.00	26.50	1	1	800

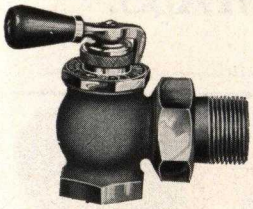
Above capacities are given in lbs. of water per hour.

For working steam pressures from 25 to 125 lbs. for use on hospital sterilizers, kitchen equipment, laundry machinery, vulcanizers, drying ovens and kilns, street steam service, Thermoliers, etc.

Caution—These Traps being thermostatic in operation must always be installed so that they discharge into a return line or receiver which is vented to atmosphere. They will not operate with a back pressure in the return line or against a head.

Not Suitable for use where the total steam temperature exceeds 400 degrees. When discharging into a vacuum return, provision should be made for properly cooling the condensate.

Thermoflex Heating Specialties

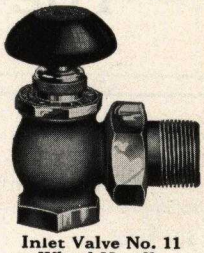


Inlet Valve No. 10
Lever Handle

Thermoflex Packless Radiator Inlet Valves—Bronze Body

List Prices and Capacities

Size, Inches	List Price, Each		Capacity No. 10 and 11
	No. 10 and 11 Angle	No. 10 and 11 R. H., L. H.	
½	$4.55	$6.70	0– 30
¾	5.30	7.45	31– 60
1	6.25	8.00	61–120
1¼	7.85	11.50	121–200



Inlet Valve No. 11
Wheel Handle

Capacities are given in square feet of direct cast iron radiation with a pressure at the valve of eight ounces. A higher pressure on the supply or a vacuum on the return will give correspondingly higher capacities.

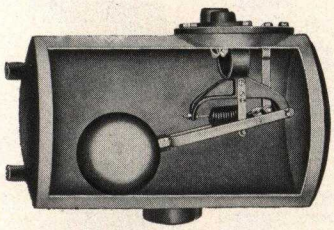
For all types of direct radiators on Vapor, Vacuum and Low Pressure Heating Systems on the supply end of each radiator.

Inlet Valves can be furnished with Lock Shield, Vertical Extension, Flush Type Extension or 90° Angle Extension. Prices on application.

Thermoflex Alternators—Vent Traps

List Prices and Capacities

Alternators

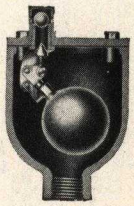


Alternator

No.	List Price Each	Steam		Water Tapping	Capacity
		Inlet	From Boiler		
0	$ 65.00	¾	1	1¼	1000
1	100.00	1	1¼	1½	2500
2	175.00	1	1½	2	6000
3	300.00	1½	2	2½	12000
4	500.00	1½	2½	3	20000

Vent Traps

No.	List Price, Each	Tapping	Capacity
30	$20.00	¾	800
40	28.00	1	5000



Vent Trap

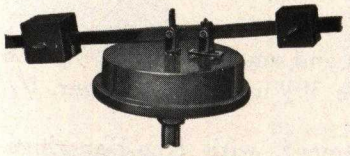
Capacities are given in square feet of direct cast iron radiation or its equivalent.

Capacities of Alternators are based on bottom of same being 9-in. above water line. A greater distance will increase their capacities slightly.

No. 0 Alternator has steam and vent connections on end of tank.

The Thermoflex Alternator and Thermoflex Vent Trap, in combination on every vapor heating system insures a positive return of water to the boiler under pressure conditions. Usually one Alternator is installed per job, but several Vent Traps may be used as deemed necessary for rapid venting according to the layout.

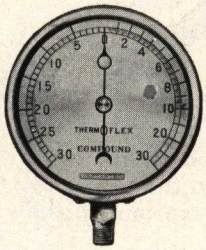
Thermoflex Damper Regulators—Lift Adapters—Compound Gauges



Damper Regulator



Lift Adapter



Compound Gauge

*List Prices cover Lift Adapter only; do not include fittings shown.

Thermoflex Damper Regulators are for sensitive and accurate control of pressure on steam boilers using coal oil, or gas for fuel. Furnished complete with rods, weights, chains and pulleys.

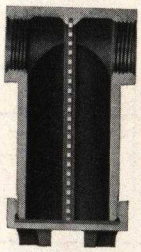
Thermoflex Lift Adapters are for lifts in return lines on Vacuum Heating Systems only. Must be used with straight size cast iron tees. Reducing tees cannot be used.

Thermoflex Compound Gauges are for accurate reading of pressures on steam boilers of all types.

Damper Regulators			Lift Adapters								Compound Gauges		
No.	Size Diaphragm	List Price, Each	No.	*List Price, Each	Fitting Size	Adapter Outlet	No.	*List Price, Each	Fitting Size	Adapter Outlet	No.	Size Dial	List Price, Each
90	7	$42.00	70	$3.00	1	¾	74	$ 7.00	2½	2	80	5	$15.00
91	10	50.00	71	4.00	1¼	1	75	8.00	3	2½	81	7	40.00
			72	5.00	1½	1¼	76	10.00	4	3	82	8½	56.00
			73	6.00	2	1½							

Thermoflex Strainers—Cast Iron Body

Type G (Screwed End Only) (Revised List Prices—Effective Feb. 23, 1931)

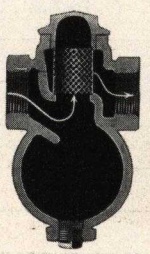


Strainer—Type G.

Size.....Inches	½	¾	1	1¼	1½	2	2½	3
List Price.....Each	$4.25	$4.70	$5.50	$5.85	$7.00	$11.80	$18.00	$30.00

Type F

Size.....Inches	2½	3	3½	4	5	6
List Price, Screwed.....Each	$50.00	$67.00	$ 92.00	$117.00	.....	.....
List Price, Flanged.....Each	.....	75.00	100.00	125.00	$150.00	$210.00



Strainer—Type F

For all drip points in steam supply main and risers; before all drip traps; before all blast traps, reducing valves and governors, and at all points necessary to protect specialties from dirt and scale.

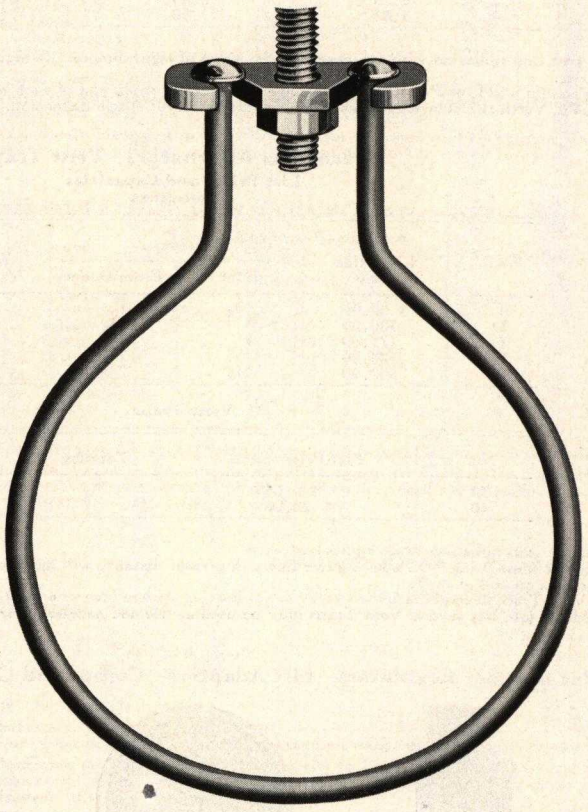
THE KEN-BAR COMPANY BOSTON, MASS.

79 Milk Street

Ken-Bar Sherardized Pipe Rings

Adjustable

Detachable



Strong

Simple

Low Priced

Easy to Install

Ken-Bar Sherardized Pipe Rings can be opened to go on over the pipe. They are sprung into the yokes by hand pressure and held there by the tension of the wire and the special form of the yoke.

The safe loads given in the table are less than the actual breaking strength divided by four.

These rings are furnished in Sherardized Finish only. Sherardizing is accepted by the U. S. Government as equal to galvanizing.

Ken-Bar rings 3 inches and smaller require ⅜-inch suspension rods and those 3½ inches and larger, ½-inch rods.

To get vertical adjustment, with Ken-Bar rings, ease the weight of the pipe from the ring and turn the nut by hand. Use hexagon nuts.

We are ready to furnish suspension rods, etc., according to requirements, on short notice.

Price List—F. O. B. Worcester, Mass.

SIZE Inches	Price Each	Safe Loads Lbs.	Standard Package Contains	SIZE Inches	Price Each	Safe Loads Lbs.	Standard Package Contains
¾	.12	200	1000	3	.27	500	500
1	.13	200	1000	3½	.44	800	250
1¼	.14	225	1000	4	.53	900	250
1½	.16	240	1000	5	.66	950	250
2	.19	400	500	6	.82	1000	250
2½	.23	450	500				

LEE BROTHERS FOUNDRY COMPANY — ANNISTON, ALA.

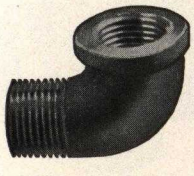
17th Street and Railroad



90-Degree Elbow



45-Degree Elbow



90-Degree Street Elbow



Tee



Coupling



Reducing Coupling



Cap

Standard Brass Fittings

Air Tested Under Water

For Steam Working Pressures up to 125 Pounds—Square Bead—Rough—For Iron Pipe

Size ..... Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	4
Elbows, 90-degree ..... Each	$0.12	$0.15	$0.20	$0.28	$0.40	$0.63	$0.90	$1.20	$2.00	$3.50	$ 6.00	$10.00
Elbows, Reducing ..... Each	.....	.19	.25	.35	.50	.80	1.10	1.50	2.50	4.25	7.50	12.50
Elbows, 45-degree ..... Each	.16	.20	.25	.31	.40	.63	.90	1.20	2.00	3.50	6.00	10.00
Elbows, Street, 90-degree .... Each	.25	.27	.33	.48	.63	.85	1.50	2.00	3.25	.....	.....	.....
Elbows, Street, 45-degree .... Each	.....	.....	.....	.48	.63	.85	1.50	2.00	3.25	.....	.....	.....
Tees ..... Each	.17	.21	.28	.40	.55	.85	1.25	1.70	2.80	5.00	8.50	14.00
Tees, Reducing ..... Each	.....	.25	.35	.50	.70	1.05	1.55	2.10	3.50	6.25	10.50	17.50
Crosses ..... Each	.25	.30	.40	.55	.80	1.25	1.80	2.40	4.00	7.00	12.00	20.00
Couplings ..... Each	.10	.13	.17	.25	.37	.55	.80	1.00	1.60	2.50	3.50	7.00
†Couplings, Reducing ..... Each	.....	.15	.20	.28	.40	.60	.90	1.10	1.75	2.75	4.00	8.00
Bushings, Regular ..... Each	.....	.10	.12	.15	.22	.35	.50	.70	1.00	1.50	2.50	5.00
Plugs, Regular ..... Each	.08	.10	.12	.15	.20	.30	.45	.60	.95	1.50	2.25	5.00
Plugs, Solid ..... Each	.....	.....	.18	.22	.30	.45	.80	1.20	1.90	3.00	4.50	10.00
Plugs, Countersunk ..... Each	.....	.....	.....	.22	.30	.45	.65	.90	1.40	.....	.....	.....
Caps ..... Each	.10	.13	.16	.20	.30	.42	.60	.80	1.25	2.50	3.50	7.00
Locknuts ..... Each	.10	.10	.12	.15	.20	.28	.40	.55	.80	1.75	2.75	5.00
Return Bends, Close ..... Each	.30	.40	.55	.70	1.00	1.25	1.80	2.50	4.25	7.00	10.00	.....
Return Bends, Open ..... Each	.40	.50	.60	.80	1.10	1.40	2.15	3.00	4.75	8.25	11.00	.....
Wyes ..... Each	.....	.....	.60	.75	1.10	1.65	2.50	3.30	5.50	9.50	16.00	26.00

†Bushings and Couplings reducing more than two sizes furnished at an advance of 25 per cent over above prices.

Stock Sizes

Ells

⅛ inch, ¼ inch, ⅜ inch, ½ inch, ¾ inch, 1 inch, 1¼ inch, 1½ inch, 2 inch, 2½ inch, 3 inch, 4 inch

45-Degree Ells

⅛ inch, ¼ inch, ⅜ inch, ½ inch, ¾ inch, 1 inch, 1¼ inch, 1½ inch, 2 inch, 2½ inch, 3 inch, 4 inch

Street Ells

⅛ inch, ¼ inch, ⅜ inch, ½ inch, ¾ inch, 1 inch, 1¼ inch, 1½ inch, 2 inch

Tees

⅛ inch, ¼ inch, ⅜ inch, ½ inch, ¾ inch, 1 inch, 1¼ inch, 1½ inch, 2 inch, 2½ inch, 3 inch, 4 inch

Couplings

⅛ inch, ¼ inch, ⅜ inch, ½ inch, ¾ inch, 1 inch, 1¼ inc, 1½ inch, 2 inch, 2½ inch, 3 inch, 4 inch

Locknuts

⅛ inch, ¼ inch, ⅜ inch, ½ inch, ¾ inch, 1 inch, 1¼ inch, 1½ inch, 2 inch, 2½ inch, 3 inch, 4 inch

Caps

⅛ inch, ¼ inch, ⅜ inch, ½ inch, ¾ inch, 1 inch, 1¼ inch, 1½ inch, 2 inch, 3 inch, 4 inch

Plugs

⅛ inch, ¼ inch, ⅜ inch, ½ inch, ¾ inch, 1 inch, 1¼ inch, 1½ inch, 2 inch, 2½ inch, 3 inch, 4 inch

45-Degree Street Ells

½ inch, ¾ inch, 1 inch, 1¼ inch, 1½ inch, 2 inch

Reducing Ells

⅜x¼ inch, ½x⅜ inch, ¾x⅜ inch, ¾x½ inch, 1x⅜ inch, 1x½ inch, 1x¾ inch, 1¼x½ inch, 1¼x¾ inch, 1¼x1 inch, 1½x1 inch, 1½x1¼ inch, 2x1 inch, 2x1¼ inch, 2x1½ inch, 2½x2 inch, 3x2 inch

Reducers

¼x⅛ inch, ⅜x⅛ inch, ⅜x¼ inch, ½x¼ inch, ½x⅜ inch, ¾x¼ inch, ¾x⅜ inch, ¾x½ inch, 1x¼ inch, 1x⅜ inch, 1x½ inch, 1x¾ inch, 1¼x¾ inch, 1¼x1 inch, 1¼x1¼ inch, 1¼x1½ inch, 1½x¾ inch, 1½x1 inch, 1½x1¼ inch, 2x1 inch, 2x1¼ inch, 2x1½ inch, 2½x2 inch

Bushings

¼x⅛ inch, ⅜x⅛ inch, ⅜x¼ inch, ½x¼ inch, ½x⅜ inch, ¾x¼ inch, ¾x⅜ inch, ¾x½ inch, 1x¼ inch, 1x⅜ inch, 1x½ inch, 1x¾ inch, 1¼x⅜ inch, 1¼x½ inch, 1¼x¾ inch, 1¼x1 inch, 1½x⅜ inch, 1½x½ inch, 1½x¾ inch, 1½x1 inch, 1½x1¼ inch, 2x½ inch, 2x¾ inch, 2x1 inch, 2x1¼ inch, 2x1½ inch, 2½x¾ inch, 2½x1 inch, 2½x1¼ inch, 2½x1½ inch, 2½x2 inch, 3x1 inch, 3x1¼ inch, 3x1½ inch, 3x2 inch, 3x2½ inch

Bullhead Tees

⅜x½ inch, ½x¾ inch, ¾x1 inch, 1x1½ inch, 1¼x1½ inch

Reducing Tees

⅜x¼x⅜ inch, ½x⅜x⅜ inch, ½x⅜x½ inch, ½x¼ inch, ½x⅜ inch, ¾x¼x¼ inch, ¾x⅜x⅜ inch, ¾x½x½ inch, ¾x½x¾ inch, ¾x¾x¾ inch, 1x¾x¾ inch, 1x½x½ inch, 1x½x¾ inch, 1x½x1 inch, 1x¾x½ inch, 1x¾x¾ inch, 1x¾x1 inch, 1x⅜ inch, 1x½ inch, 1x¾ inch, 1¼x¾x¾ inch, 1¼x¾x1 inch, 1¼x¾x1¼ in., 1¼x1x¾ inch, 1¼x1x1 inch, 1¼x1x1¼ inch, 1¼x¾ inch, 1¼x1 inch, 1½x1x1 inch, 1½x1x1½ inch, 1½x1¼x1 inch, 1½x1¼x1¼ in., 1½x1¼x1½ in., 1½x½ inch, 1½x¾ inch, 1½x1 inch, 1½x1¼ inch, 2x1x1 inch, 2x1x2 inch, 2x1½x1½ inch, 2x1½x2 inch, 2x½ inch, 2x¾ inch, 2x1 inch, 2x1¼ inch, 2x1½ inch, 2½x2 inch, 3x2 inch

Extra Heavy Brass Fittings

Brass Flange Unions—Brass Companion Flanges

Brass Boiler Unions

KUHNS BROTHERS CO. DAYTON, OHIO

1800 McCall Street

Manufacturers of

"K"

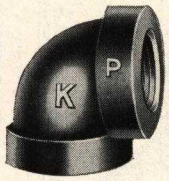
Inspected Cast Iron Fittings

Standard Fittings

Cast Iron
For Steam Working Pressure Up to 125 Pounds



Straight Elbow



Straight Pitch Elbow



Reducing Pitch Elbow



Side Outlet Elbow



R. & L. Elbow



Reducing Elbow



45-Degree Elbow

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Straight Elbows.....Each	$0.05	$0.05	$0.06	$0.08	$0.10½	$0.16	$0.20	$0.28	$0.50	$0.75
R. & L. Elbows.....Each	.06	.06	.07	.09	.12	.18	.23	.32	.60	.85
Pitched Elbows.....Each	.....	.....	.08	.10	.13	.20	.25	.35	.65	1.00
Reducing Elbows.....Each	.....	.06	.07	.09	.12	.18	.23	.32	.60	.85
Reducing Pitched Elbows.....Each	.....	.....	.....	.11	.14½	.22	.28	.39	.75	1.10
Side Outlet Elbows.....Each	.....	.....	.18	.24	.30	.48	.60	.84	1.50	2.25
Reducing Side Outlet Elbows...Each	.....	.....	.21	.28	.35	.55	.68	.96	1.70	2.58
45-degree Elbows.....Each	.06	.06	.07	.10	.12	.19	.24	.34	.60	.90

Size.....Inches	3½	4	4½	5	6	7	8	9	10	12
Straight Elbows.....Each	$1.05	$1.20	$1.75	$2.00	$2.75	$ 4.70	$ 6.75	$ 9.00	$13.50	$20.00
R. & L. Elbows.....Each	1.20	1.45	.....	.....	.....	.....	.....	.....	.....	.....
Pitched Elbows.....Each	1.30	1.50	2.25	3.00	4.00	.....	.....	.....	.....	.....
Reducing Elbows.....Each	1.20	1.40	2.00	2.30	3.15	5.40	7.75	10.50	15.50	23.00
Reducing Pitched Elbows.....Each	1.45	1.70	2.50	3.30	4.40	.....	.....	.....	.....	.....
Side Outlet Elbows.....Each	3.15	3.60	5.25	6.00	8.25	14.00	20.00	26.00	40.00	60.00
Reducing Side Outlet Elbows...Each	3.60	4.00	6.00	6.90	9.45	.....	.....	.....	.....	.....
45-degree Elbows.....Each	1.25	1.45	2.20	2.50	3.45	5.90	8.50	11.25	17.00	25.00

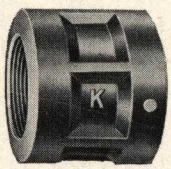
Pitched Elbows are tapped to pitch ¼ inch per foot.



Reducing Coupling



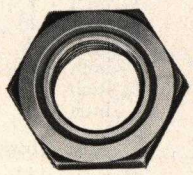
Eccentric Reducing Coupling



Right and Left Coupling



Straight Y-Bend



Locknut



Cap

Size.....Inches	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8	9	10	12
Reducing Couplings.....Each	.07	.10	.16	.22	.28	.43	.60	.80	1.00	1.35	1.85	2.00	2.70	5.35	6.75	8.35	10.00	15.00
Eccentric Reducing Couplings.Each	.....	.....	.....	.55	.72	1.00	1.50	2.40	3.00	4.00	5.00	6.00	8.00	9.00	11.00	.....	.....	.....
R. & L. Couplings.....Each	.....	.15	.20	.25	.30	.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Straight Y-Bends.....Each	.20	.28	.34	.54	.66	.94	1.66	2.50	3.50	4.00	5.90	7.00	9.20	15.60	22.50	30.00	45.00	67.00
Reducing Y-Bends.....Each	.23	.33	.40	.62	.76	1.08	1.90	2.90	4.00	4.60	6.80	8.00	10.60	18.00	26.00	35.00	51.75	77.00
Locknuts.....Each	.....	.....	.....	.13	.20	.25	.27	.34	.47	.64	.85	.90	1.30	.....	.....	.....	.....	.....
Caps.....Each	.....	.....	.08	.14	.20	.26	.40	.54	.75	.87	1.05	1.20	1.55	2.50	2.85	4.75	5.50	7.00

Galvanized Fittings are figured double the above list prices.

Standard Fittings

Cast Iron

For Steam Working Pressure Up to 125 Pounds



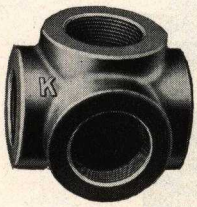




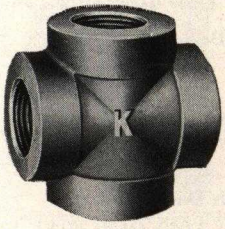
Straight Tees



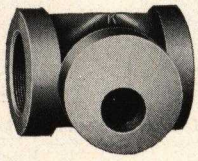
Reducing Tees



Side Outlet Tee



Straight Cross





Eccentric Tees



Side Outlet Cross

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Straight Tees.....Each	$0.08	$0.08	$0.09	$0.12	$0.15	$0.23	$0.29	$0.41	$0.73	$1.10
Reducing Tees.....Each	.09	.09	.10	.14	.17	.27	.33	.47	.83	1.25
Side Outlet Tees.....Each	.....	.....	.27	.36	.45	.70	.90	1.25	2.25	3.25
Reducing S. O. Tees.....Each	.....	.....	.31	.42	.52	.80	1.00	1.45	2.58	3.73
Straight Crosses.....Each	.15	.15	.16	.22	.27	.42	.53	.75	1.30	2.00
Reducing Crosses.....Each	.....	.18	.18	.25	.30	.46	.60	.83	1.45	2.20
Side Outlet Crosses.....Each	.....	.....	.36	.48	.60	.95	1.20	1.65	3.00	4.50
Reducing S. O. Crosses.....Each	.....	.....	.....	.....	.70	1.00	1.30	1.75	3.20	4.80

Size.....Inches	3½	4	4½	5	6	7	8	9	10	12
Straight Tees.....Each	$1.50	$1.75	$2.55	$ 3.00	$ 4.00	$ 6.80	$ 9.75	$13.00	$19.50	$29.00
Reducing Tees.....Each	1.75	2.00	2.95	3.50	4.60	7.80	11.25	15.00	22.50	33.50
Side Outlet Tees.....Each	4.50	5.25	.....	9.00	12.00	.....	.....	.....	.....	.....
Reducing S. O. Tees.....Each	5.15	6.00	.....	10.35	13.80	.....	.....	.....	.....	.....
Straight Crosses.....Each	2.70	3.15	4.60	5.50	7.25	12.25	17.50	23.50	35.00	52.50
Reducing Crosses.....Each	3.00	3.50	5.10	6.00	8.00	13.50	19.25	26.00	38.50	58.00
Side Outlet Crosses.....Each	6.30	7.20	.....	12.00	16.50	.....	.....	.....	.....	.....
Reducing S. O. Crosses.....Each	6.65	7.75	.....	13.00	17.50	.....	.....	.....	.....	.....

Right and Left Hand Fittings have a button on band of Left Hand End.

The letter "P" is cast on the band of Pitched Fittings.

Right and Left Pitched Elbows, Reducing Elbows, 45-degree Elbows, Tees and Crosses will be charged at 5 per cent gross higher than Right Hand.

Eccentric Fittings are made to order only and at special prices, send sketch with order.

Reducing Side Outlet Fittings are made to order and at special prices.

Galvanized Fittings are figured double the above list prices.

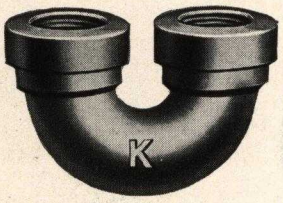
Also Manufacture a line of Standard Flanged Fittings

Standard Fittings

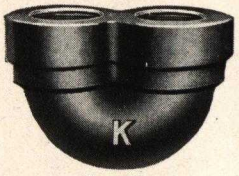
Cast Iron

For Steam Working Pressure Up to 125 Pounds

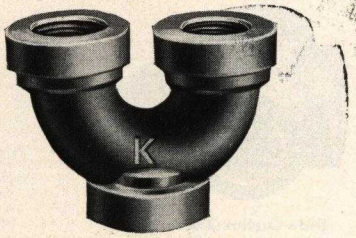
Return Bends



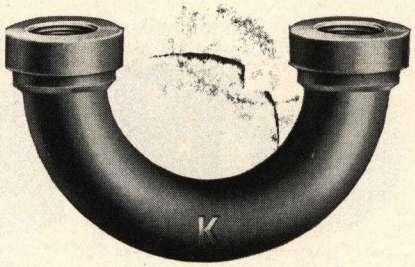
Open Bend



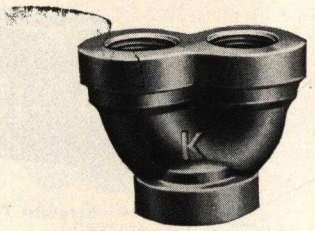
Close Bend



Open Back Outlet Bend



Wide Pattern Bend



Close Back Outlet Bend

Open Pattern Return Bends

Size.....Inches	½	¾	1	1¼	1½	2
Centers.....	1½	1⅞	2½	3	3½	4½
Price.....Each	$0.25	$0.26	$0.30	$.040	$0.55	$0.80
Price, R. & L. or L. H..Each	.30	.30	.35	.46	.64	.92

Close Pattern Return Bends

Size.....Inches	½	¾	1	1¼	1½	2
Centers.....	1¼	1½	1¾	2¼	2¼	3¼
Price, R. H.....Each	$0.18	$0.20	$0.22	$0.28	$0.40	$0.57
Price, R. & L. or L. H..Each	.21	.23	.26	.33	.46	.66

Open Pattern Return Bends with Back Outlet

Price.....Each	.....	$0.38	$0.42	$0.60	$0.80	$1.15
Price, R. & L. or L. H..Each	.....	.42	.48	.70	.95	1.30

Close Pattern Return Bends with Back Outlet

Price.....Each	.....	$0.38	$0.42	$0.60	$0.80	$1.15
Price, R. and L.....Each	.....	.42	.48	.70	.95	1.30

Wide Pattern Return Bends

Size.....Inches	1	1	1	1	1	1	1¼	1¼	1¼	1¼	2	2
Centers.....	2¾	3	4	5	6	8	4	5	6	8	4	6
Price.....Each	$0.40	$0.45	$0.50	$0.60	$0.75	$1.00	$1.00	$1.10	$1.25	$1.75	$1.75	$2.00

Extra Heavy Fittings

Cast Iron

For Steam Working Pressure Up to 250 Pounds



Straight Elbow



Straight Cross



Reducing Elbow



45-Degree Elbow



Y-Bend



Straight Tee



Reducing Tee

Size.....Inches	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6
Straight Elbows.....Each	$0.25	$0.30	$0.35	$0.45	$0.60	$0.75	$1.25	$2.00	$2.75	$ 3.50	$ 4.25	$ 5.50	$ 8.00
Reducing Elbows.....Each	.35	.40	.45	.55	.75	.95	1.55	2.50	3.40	4.40	5.30	6.80	10.00
45-degree Elbows.....Each	.35	.40	.44	.55	.70	.90	1.50	2.50	3.50	4.50	5.50	6.75	9.75
Straight Tees.....Each	.40	.45	.55	.70	.90	1.15	1.80	3.00	4.25	5.50	6.75	8.25	12.00
Reducing Tees.....Each	.55	.60	.70	.90	1.15	1.40	2.25	3.75	5.30	6.85	8.50	10.25	15.00
Straight Crosses.....Each	.60	.65	.70	.90	1.20	1.50	2.50	4.00	5.50	7.00	8.50	11.00	16.00
Reducing Crosses.....Each	.80	.85	.90	1.15	1.50	1.85	3.15	5.00	6.85	8.75	10.00	13.75	20.00
Straight Y-Bends.....Each	.....	.....	.....	1.35	1.80	2.25	3.75	6.00	.....	11.00	.....	.....	24.00

Galvanized Fittings are figured double the above list prices.

Long Turn Screwed Fittings

Cast Iron

For Steam Working Pressure Up to 125 Pounds and Water Working Pressure Up to 150 Pounds



No. 1 Elbow

Long turn Fittings have a radius of more than double that of the standard fittings and are especially desirable when the flow is not to be retarded.

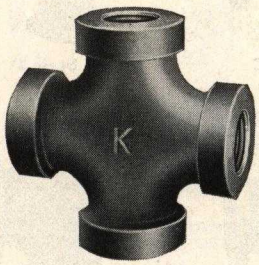
The 2½ to 6-inch elbows, tees and crosses are designed in accordance with the rules and requirements of the National Fire Protection Association and are known as American Standard Sprinkler Fittings and are marked $\frac{K}{31}$ and $\frac{W150}{U}$ — W denoting water and U showing suitability for Fire Protection and Approval by the Underwriters.



No. 2 Elbow



No. 3 Single Sweep Tee



No. 4 Cross



No. 5 Double Sweep Tee

Size.....Inches	¾	1	1¼	1½	2	2½	3	3½	4
No. 1 Elbows.....Each	$0.26	$0.32	$0.40	$0.55	$0.80	$1.20	$2.25	$ 3.25	$ 3.50
No. 1 Elbows, Reducing.....Each	.40	.48	.60	.83	1.20	1.80	3.38	4.88	5.25
No. 2 Twin Elbows, Reducing..Each	.....	.38	.52	.68	.90	1.50	2.25	.....	3.75
No. 3 Tees, Single Sweep.....Each	.....	.48	.60	.82	1.20	1.80	3.40	4.90	5.25
No. 3 Tees, Reducing.....Each	.....	.72	.90	1.23	1.80	2.70	5.10	7.35	7.88
No. 4 Crosses.....Each	.....	.85	1.10	1.50	2.15	3.20	6.00	8.75	9.50
No. 4 Crosses, Reducing.....Each	.....	1.28	1.65	2.25	3.23	4.80	9.00	13.13	14.25
No. 5 Tees, Double Sweep.....Each	.....	.64	.80	1.10	1.60	2.40	4.50	6.50	7.00
No. 5 Tees, Reducing.....Each	.....	.96	1.20	1.65	2.40	3.60	6.75	9.75	10.50

Size.....Inches	4½	5	6	7	8	9	10	12
No. 1 Elbows.....Each	$5.50	$6.50	$8.75	$13.00	$17.00	$25.50	$30.00	$40.00
No. 1 Elbows, Reducing.....Each	8.25	9.75	13.13	19.50	25.50	38.25	45.00	60.00
No. 2 Twin Elbows, Reducing.....Each	.....	6.75	9.75	.....	.....	.....	.....	.....
No. 3 Tees, Single Sweep.....Each	8.25	9.75	13.25	19.50	25.50	38.00	45.00	60.00
No. 3 Tees, Reducing.....Each	12.58	14.63	19.88	29.25	38.25	57.00	67.50	90.00
No. 4 Crosses.....Each	15.00	17.50	24.00	35.00	45.00	68.00	80.00	107.00
No. 4 Crosses, Reducing.....Each	22.50	26.25	36.00	52.50	67.50	102.00	120.00	160.50
No. 5 Tees, Double Sweep.....Each	11.00	13.00	17.50	26.00	34.00	51.00	60.00	80.00
No. 5 Tees, Reducing.....Each	16.50	19.50	26.25	39.00	51.00	76.50	90.00	120.00

Galvanized Fittings are figured double the above list prices.

The Number 2 fitting is especially designed for use in constructing hot water heating apparatus. In the supply pipes it secures an equal distribution of the water, and in the return pipes it greatly facilitates the flow of same by deviating the course of the branch current, bringing them together in such manner as to create the least possible friction.

In describing Reducing Double Branch Elbows the Run is first named, then the Inlet.

American Standard Long Turn Sprinkler Fittings are now made in Flanged and Screwed for 150 to 250 pounds hydraulic working pressure.

American Standard Cast Iron Sprinkler Fittings

Flanged and Screwed

Standard

For Fire Protection Service
For Water Up to 150 Pounds

American Standard Sprinkler Fittings are designed in accordance with the rules and requirements of the National Fire Protection Association. Are made in sizes 2½ to 8-inch, inclusive, in various styles in Standard, and 2½ to 6-inch, inclusive, in various styles in Extra Heavy.

Screwed Fittings, Flanged Fittings and combination Screwed and Flanged Fittings all have the same center to end dimensions for each respective size.

Extra Heavy

For Fire Protection Service
For Water Up to 250 Pounds

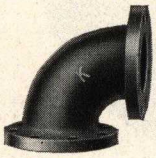
When one end is flanged, the largest opening will be flanged unless otherwise specified.

Reducing Fittings are not made regularly with the reduced opening less than one-half the nominal pipe size of the largest opening of the fitting.

Prices on Extra Heavy Fittings will be sent on request.


Style A


Style B


Style C


Style D


Style E


Bossed Elbow


Style G


Style H

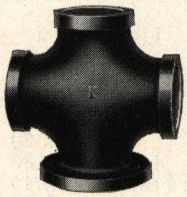

Style K


Style L


Style M


Style N


Style O


Style P


Style R


Style S

Size.....Inches	2½	3	3½	4	5	6	8
Style A, Elbows.....Each	$ 1.20	$ 2.25	$ 3.25	$ 3.50	$ 6.50	$ 8.75	$17.00
Style B, Elbows.....Each	5.50	6.00	6.50	7.50	10.00	14.00	30.00
Style C, Elbows.....Each	6.75	7.50	8.50	10.00	12.50	17.50	35.00
Style D, Elbows.....Each	.....	8.00	.....	11.00	15.00	18.00	.....
Style G, Tees.....Each	2.40	4.50	6.50	7.00	13.00	17.50	34.00
Style G, Tees, Reducing.....Each	3.60	6.75	9.75	10.50	19.50	26.25	51.00
Style H, Tees.....Each	9.00	10.00	11.00	12.00	15.00	22.00	45.00
Style K, Tees.....Each	9.00	10.00	11.00	12.00	15.00	22.00	45.00
Style L, Tees.....Each	9.00	10.00	11.00	12.00	15.00	22.00	45.00
Style M, Tees.....Each	9.00	10.00	11.00	12.00	15.00	22.00	45.00
Style N, Tees.....Each	10.00	11.50	13.00	15.00	18.00	26.00	50.00
Style O, Crosses.....Each	3.20	6.00	8.75	9.50	17.50	24.00	45.00
Style P, Crosses.....Each	12.50	13.50	15.00	17.00	22.00	30.00	65.00
Style R, Crosses.....Each	12.50	13.50	15.00	17.00	22.00	30.00	65.00
Style S, Crosses.....Each	13.50	15.00	17.00	20.00	25.00	35.00	70.00

Style E Base Elbows are made to order only, price on application.

Galvanized Fittings are figured double the above list prices.

Facing and Drilling included in the above prices.
Drilling by American Standard adopted March 1, 1928.
Bossed Ells, add $1.50 to List Prices given above.

Send for Our Catalog, Giving Complete Specifications

The Letter K is Our Trade Mark and Signifies Goods of High Quality

Standard and Extra Heavy Blind Flanges

Cast Iron

Standard

For 125 Pounds Steam Pressure
For 150 Pounds Water Pressure



Blind Flange

Extra Heavy

For 250 Pounds Steam Pressure
For 250 Pounds Water Pressure

List Prices—Standard

Size of Fitting and O. D. of Flange.....Inches	2x6	2½x7	3x7½	3½x8½	4x9	5x10	6x11	8x13½
Price, Faced.....Each	$1.15	$1.30	$1.40	$1.80	$2.00	$2.40	$3.00	$4.60
Price, Faced and Drilled.....Each	1.40	1.55	1.70	2.15	2.45	2.85	3.50	5.30

List Prices—Extra Heavy

Size of Fitting and O. D. of Flange.....Inches	2x6½	2½x7½	3x8¼	3½x9	4x10	5x11	6x12½
Price, Faced.....Each	$1.90	$2.10	$2.40	$3.00	$3.35	$4.00	$5.00
Price, Faced and Drilled.....Each	2.25	2.45	2.85	3.55	4.05	4.70	5.75

Standard and Extra Heavy Companion Flanges

Cast Iron

Standard

For 125 Pounds Steam Pressure
For 150 Pounds Water Pressure



Extra Heavy

For 250 Pounds Steam Pressure
For 250 Pounds Water Pressure

List Prices—Standard

Size of Fitting and O. D. of Flange.....Inches	2x6	2½x7	3x7½	3½x8½	4x9	5x10	6x11	8x13½
Price, Faced.....Each	$0.75	$0.85	$0.95	$1.20	$1.35	$1.60	$2.00	$3.10
Price, Faced and Drilled.....Each	1.00	1.10	1.25	1.55	1.80	2.05	2.50	3.80

List Prices—Extra Heavy

Size of Fitting and O. D. of Flange.....Inches	2x6½	2½x7½	3x8¼	3½x9	4x10	5x11	6x12½
Price, Faced.....Each	$1.25	$1.40	$1.60	$2.00	$2.25	$2.65	$3.30
Price, Faced and Drilled.....Each	1.60	1.75	2.05	2.55	2.95	3.35	4.05

Standard Reducing Companion Flanges

Cast Iron

125 Pounds Steam Pressure **150 Pounds Water Pressure**

List Prices

Size Inches	Price Faced Each	Price Faced and Drilled Each	Size Inches	Price Faced Each	Price Faced and Drilled Each
1½x6	$1.30	$1.55			
1½x7	1.45	1.70	3½x10	$2.65	$3.10
2 x7	1.45	1.70	4 x10	2.65	3.10
1½x7½	1.55	1.85	1½x11	3.30	3.80
2 x7½	1.55	1.85	2 x11	3.30	3.80
2½x7½	1.55	1.85	2½x11	3.30	3.80
1½x8½	2.00	2.35	3 x11	3.30	3.80
2 x8½	2.00	2.35	3½x11	3.30	3.80
2½x8½	2.00	2.35	4 x11	3.30	3.80
3 x8½	2.00	2.35	5 x11	3.30	3.80
1½x9	2.20	2.65	1½x13½	5.10	5.80
2 x9	2.20	2.65	2 x13½	5.10	5.80
2½x9	2.20	2.65	2½x13½	5.10	5.80
3 x9	2.20	2.65	3 x13½	5.10	5.80
3½x9	2.20	2.65	3½x13½	5.10	5.80
1½x10	2.65	3.10	4 x13½	5.10	5.80
2 x10	2.65	3.10	5 x13½	5.10	5.80
2½x10	2.65	3.10	6 x13½	5.10	5.80
3 x10	2.65	3.10	.....	.....	.....

Extra Heavy Reducing Companion Flanges

Cast Iron

250 Pounds Steam Pressure **250 Pounds Water Pressure**

List Prices

Size Inches	Price Faced Each	Price Faced and Drilled Each	Size Inches	Price Faced Each	Price Faced and Drilled Each
1½x 6½	$2.10	$2.45	1½x11	$4.40	$5.10
1½x 7½	2.30	2.65	2 x11	4.40	5.10
2 x 7½	2.30	2.65	2½x11	4.40	5.10
1½x 8¼	2.65	3.10	3 x11	4.40	5.10
2 x 8¼	2.65	3.10	3½x11	4.40	5.10
2½x 8¼	2.65	3.10	4 x11	4.40	5.10
1½x 9	3.30	3.85	1½x12½	5.50	6.25
2 x 9	3.30	3.85	2 x12½	5.50	6.25
2½x 9	3.30	3.85	2½x12½	5.50	6.25
3 x 9	3.30	3.85	3 x12½	5.50	6.25
1½x10	3.70	4.40	3½x12½	5.50	6.25
2 x10	3.70	4.40	4 x12½	5.50	6.25
2½x10	3.70	4.40	5 x12½	5.50	6.25
3 x10	3.70	4.40	.....	.....	.....
3½x10	3.70	4.40	.....	.....	.....

All 250-lb. Flanges have a 1/16-inch raised face.

THE NEWBURY MFG. COMPANY — MONROE, N. Y.

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New York, N. Y., John G. Kelly, Inc., 210 E. 45th St. — Winthrop, Mass., Harry Clark, 50 Prospect Ave.

Tank Fittings for Fill Pipe and Vent Lines to Underground Storage Tanks

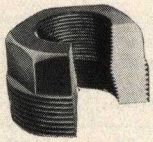


Figure 79

Tank Bushings—Figure 79

These bushings, which are double-tapped, are designed for reducing tank openings to size of fill pipe and vent lines. Single-reduction sizes are furnished large hex, all other sizes small hex. All sizes up to 4-inch in all reductions carried in stock.

Flush Floor Cap—Figure 107

This cap is of heavy construction designed for setting in concrete. Threaded brass plug seats with gasket on cast iron body, making tight joint. The heavy wrench furnished may also be used to cut away dirt and ice. Painted black. Size—2-inch.



Figure 107

Locking Floor Cap—Figure 108



Figure 108

Similar to Figure 107, but lower plug may be locked with ordinary padlock. Lower plug is brass and seats with gasket on faced shoulder of body. Cover is brass and seats with fibre washer on upper shoulder, making watertight joint. The wrench provided, fitting both plugs, may be used to cut away dirt and ice. Painted Black.



Figure 106

Vented Cap—Figure 106

All cast iron with hinged cover which can be locked with padlock. Vent is provided between cover and body. Overlapping edge prevents water entering cap. Painted black. Sizes—2, 3 and 4-inch.

Watertight Fill Cap—Figure 109

This heavy cast iron cap has threaded plug and gasket, making watertight joint. Plug may be locked in any position. Painted black. Sizes —1½, 2, 3 and 4-inch.



Figure 109



Figure 110

Long Air Vent—Figure 110

Cast iron, with two holes underneath covered with 30 x 30 mesh brass screen. Painted black. Sizes—¾, 1, 1¼, 1½ and 2-inch.

Round Air Vent—Figure 111

Cast iron, with small screened holes underneath. Painted black. Sizes—1 and 1¼-inch.



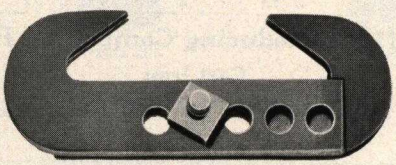
Figure 111

Manufacturers of Pipe Fittings and Plumbing Supplies
Bushings—Unions—Flanges—Pipe Hangers—Ferrules—Vent Caps—Traps—Refrigerator Drains
Write for Catalog and Prices

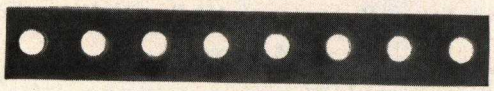
CHARLES J. STOLL — NEW YORK, N. Y.

325 Audubon Avenue

Stoll Specialties



Adjustable Steel Beam Clamp



Perforated Extension Bar

Adjustable Steel Beam Clamps

Adjustable to fit face flanges of "I" Beams from 2 to 6 inches wide. Stock used—3/16-inch.
Net prices on application.

Perforated Extension Bars

Made of soft steel with bolt holes ½-inch apart. Shipped in 5 and 10-foot lengths, in the following sizes:

No. 20-Gauge.....⅞-inch wide — No. 16-Gauge.....⅞-inch wide
No. 18-Gauge.....⅞-inch wide — No. 14-Gauge..... 1-inch wide

Net prices on application



Steel Band Hanger With Bolt

Steel Band Hangers with Bolts

Furnished with two holes and one bolt.

Size.....Inches	½	¾	1	1¼	1½	2	2½
Stock Used.....	⅞x15	⅞x15	⅞x15	⅞x15	⅞x15	⅞x15	1x14

Size.....Inches	3	3½	4	4½	5	6	7	8
Stock Used.....	1⅛x12	1⅛x12	1⅛x12	1⅛x12	1⅛x12	1¼x10	1¼x8	1¼x8

Net prices on application.

MALLEABLE IRON FITTINGS COMPANY — BRANFORD, CONN.

NOTE—Kuhns Brothers Company maintain a complete stock of "MIF" Malleable Fittings in their Dayton, Ohio, warehouse. Shipments may be obtained from the Dayton warehouse.

NOTE—Malleable Iron Fittings Company maintain a complete stock of "K" Inspected Cast Iron Fittings manufactured by Kuhns Brothers Company. Shipments may be obtained from our Branford warehouse.

Malleable Iron Fittings


Fig. 2


Fig. 8


Fig. 3


Fig. 4


Fig. 1


Fig. 5


Fig. 7


Fig. 34

Fig. 2—Elbows, 90°, Flat Banded

Size, Inches	Wt. per 100† Black	Wt. per 100† Galv.	List Price Ea. Black	List Price Ea. Galv.
¼	10.3	10.6	$0.05	$0.07
*⅜x⅛	8.3	8.5	.07	.09
⅜x¼	13.8	14.2	.07	.09
⅜	15.3	15.7	.06	.08
*½x⅛	15.5	15.9	.08	.10
½x¼	17.3	17.8	.08	.10
½x⅜	19.8	20	.08	.10
½	23.5	24.2	.07	.09
*¾x¼	21	21.6	.11	.14
¾x⅜	25.5	26	.11	.14
¾x½	30	31	.11	.14
¾	37	38	.10	.13
*1x¼	31.5	32.4	.14	.18
1x⅜	31.7	32.6	.14	.18
1x½	42	43	.14	.18
1x¾	52.5	54	.14	.18
1	60	62	.13	.17
*1¼x⅜	45.7	47	.22	.29
1¼x½	53	54.5	.22	.29
1¼x¾	65.7	67.6	.22	.29
1¼x1	81	83	.22	.29
1¼	85	87.5	.20	.26
*1½x½	60.7	62.5	.28	.36
1½x¾	84	86.5	.28	.36
1½x1	90	92.7	.28	.36
1½x1¼	111	114	.28	.36
1½	127	130	.25	.33
*2x¾	103	106	.44	.57
2x1	119	122.5	.44	.57
2x1¼	144	148	.44	.57
2x1½	167.5	176.5	.44	.57
2	186.5	192	.40	.52
2½x1½	209	215	.80	1.05
2½x2	236	242	.80	1.05
2½	324	333	.72	.95
3x2	308	317	1.10	1.45
3x2½	362.5	373	1.10	1.45
3	503	518	1.00	1.30
*3½x2½	425	437.7	1.65	2.15
3½x3	600	618	1.65	2.15
3½	612.5	630	1.50	1.95
4x3	681	700	2.00	2.60
4	900	927	1.80	2.35
4½	1153	1187	2.30	2.90
5	1512	1557	3.25	4.25
6	2137	2201	4.65	6.05

Fig. 8—Elbows, 45°, Flat Banded

¼	8.1	8.3	$0.06	$0.08
⅜	14.7	15.1	.07	.09
½	20.5	21.0	.09	.12
¾	33	34	.12	.16
1	54	55.6	.16	.21
1¼	80	82	.24	.31
1½	111	114	.30	.39
2	166	171	.48	.62
2½	243	250	.86	1.10
3	413	426	1.20	1.55
3½	390	400	1.80	2.35
4	742	764	2.20	2.85
4½	906	933	2.80	3.65
5	1250	1288	3.90	5.10
6	1743	1795	5.60	7.30

Fig. 5—Side Outlet Elbows, Plain

*¼	12	12.4	$0.10	$0.13
⅜	16	16.5	.12	.16
½	27	28	.14	.18
¾	44.5	45.8	.20	.26
1	63	65	.26	.34
1¼	84	86	.40	.52
1½	140	144	.50	.65
2	222	229	.80	1.05

Fig. 3—Elbows, Street or Service Flat Banded

*⅛ Plain	3	3	$0.06	$0.08
⅛ F. B.	5.1	5.2	.06	.08
¼	9	9.6	.06	.08
⅜	16.2	16.4	.07	.09
½	22	22.6	.08	.10
¾x½	30	31	.13	.17
¾	37	38	.12	.16
1x¾	44.5	45.8	.17	.22
1	60	62	.15	.20
*1¼x¾	58	59	.25	.33
1¼x1	89	91.6	.25	.33
1¼	91.5	94	.23	.30
*1½x¾	68.7	70.7	.32	.42
*1½x1	85	87.5	.32	.42
1½x1¼	113.7	117	.32	.42
1½	124.5	128	.29	.38
*2x1	140	144	.51	.66
*2x1¼	150	154	.51	.66
2x1½	162	166	.51	.66
2	226	232.7	.46	.60
2½	353	363	.83	1.10
3	555	571.6	1.15	1.50
*3½	558	574	1.80	2.35
4	796	820	2.10	2.75
6	1980	2040	5.35	6.95

Fig. 4—Elbows, 45° Street, Flat Banded

*⅛ Plain	3.8	3.8	$0.07	$0.09
*¼ F.B.	9.5	9.7	.07	.09
⅜	10.6	10.9	.08	.10
½	20	20.6	.10	.13
¾	27.6	28	.14	.18
1	40	41	.18	.23
1¼	78	80	.28	.36
1½	92.7	95.4	.35	.46
2	168	173	.55	.72
*2½	257	264	.90	1.17
*3	390	402	1.40	1.85

Fig. 1—Elbows, 90°, Plain

⅛	6.3	6.5	$0.05	$0.07
¼x⅛	6.5	6.7	.06	.08
¼	8.7	9	.05	.07
⅜x⅛	7	7.2	.07	.09
⅜x¼	9.8	10	.07	.09
⅜	12.6	12.9	.06	.08
½x¼	14	14.4	.08	.10
½x⅜	16.4	16.8	.08	.10
½	19	20	.07	.09
¾x⅜	22.5	23.1	.11	.14
¾x½	25	25.7	.11	.14
¾	31	32	.10	.13
1x⅜	45	46.3	.14	.18
1x½	32.2	33.1	.14	.18
1x¾	36.6	37.6	.14	.18
1	49.6	51	.13	.17
1¼x¾	57	58.7	.22	.29
1¼x1	54	55.6	.22	.29
1¼	63.4	65	.20	.26
1½x1	103	106	.28	.36
1½x1¼	90	92	.28	.36
1½	93.4	96	.25	.33
2x1¼	180	185	.44	.57
2x1½	137.5	141	.44	.57
2	157.5	162	.40	.52

Fig. 34—45° Y Branches, Plain

1¼	143	147	$0.40	$0.52
1½x1¼	200	206	.63	.82
1½	279	287	.57	.75
2x1¼	265	273	.95	1.25
2x1½	288	297	.95	1.25
2x1½x1¼	250	257	.95	1.25
2x1½x2	269	278	.95	1.25

Size, Inches	Wt. per 100† Black	Wt. per 100† Galv.	List Price Ea. Black	List Price Ea. Galv.
2	325	335	$0.85	$1.10
2½x1¼	345	355	1.70	2.20
2½x2	452	466	1.70	2.20
2½x2x2	411	424	1.70	2.20
2½x2x2½	482	497	1.70	2.20
2½	434	447	1.55	2.00

Fig. 35—45° Y Branches, Flat Banded

*¼	13	13.	$0.07	$0.09
*⅜	20	20.6	.10	.13
½	34	35	.14	.18
*¾x½	67.5	69.5	.20	.26
¾	57	58.5	.18	.23
*1x½	103	106	.28	.37
*1x¾	121	125	.28	.37
1	85	87	.25	.33
*1¼x¾	124	128	.44	.57
1¼x1	127	130	.44	.57
1¼	139	143	.40	.52
*1½x¾	176	181	.63	.82
*1½x1	200	206	.63	.82
*1½x1¼	250	257	.63	.82
1½	200	206	.57	.75
*2x1	231	238	.95	1.25
*2x1¼	275	283	.95	1.25
*2x1½	263	271	.95	1.25
2	338	348	.85	1.10
2½	500	515	1.55	2.00
3	781	804	2.80	3.65
*3½	800	824	3.50	4.55
4	1431	1474	4.80	6.25

Fig. 7—Elbows, 45°, Plain

*⅛	4.2	4.2	$0.06	$0.08
*¼	7.4	7.6	.06	.08
*⅜	11.8	12	.07	.09
*½	16	16.4	.09	.12
*¾	26.7	27.5	.12	.16
*1	34.6	35.6	.16	.21
*1¼	67	69	.24	.31
*1½	89.7	92	.30	.39
*2	139	143	.48	.62

60° Elbows—¼-inch—2½-inch—Standard Sizes 1½-inch—2-inch.
Prices 30% extra over 45° Elbows.

Fig. 13—Female Drop Elbows, Plain

¼			$0.07	$0.09
⅜			.09	.11
½			.12	.16
¾			.18	.23
*¾x½			.20	.26

Fig. 15—M. & F. Drop Elbows, Plain

⅜			$0.08	$0.11

Fig. 17—M. & F. Drop Elbows, Long, Plain

⅜			$0.10	$0.13

Fig. 27—Female Drop Tees, Plain

⅜			$0.10	$0.13
½x⅜			.17	.22
½			.15	.20
¾x½			.24	.31
¾			.22	.28

Fig. 30—Male & Female Drop Tees, Plain

⅜			$0.10	$0.13

Boiler Drain Elbows

½x1	4-inch C-F		$0.35

†Weights per 100 Pieces are not guaranteed but are approximate and for your convenience.
R. & L. Ells Banded only ¼-inch to 2-inch 15% Extra.
*This is not a standard size fitting.


Fig. 13


Fig. 15


Fig. 17


Fig. 27


Fig. 30


Fig. 35

Malleable Iron Fittings

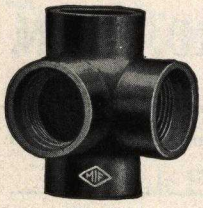

Fig. 23


Fig. 22


Fig. 24


Fig. 25


Fig. 32


Fig. 33

Fig. 22—Street Tees, Flat Banded

Size, Inches	Weight per 100† Black	Weight per 100† Galv.	List Price Each Black	List Price Each Galv.
*¼	11	11.3	$0.08	$0.10
⅜	18	18.5	.09	.12
½	30	31	.12	.16
¾	45	46	.15	.20
1x¾	69	71	.22	.29
*1x¾x1	65	67	.22	.29
1	85	87	.20	.26
1¼x¾x1¼	85	87	.33	.43
1¼x1x1	95	98	.33	.43
1¼x1x1¼	99	102	.33	.43
1¼	129	133	.30	.39
*1½x¾x¾	83	85	.42	.55
*1½x¾x1	90	93	.42	.55
*1½x¾x1¼	117	121	.42	.55
*1½x¾x1½	124	127	.42	.55
*1½x1x1½	130	134	.42	.55
1½x1¼x1½	151	155	.42	.55
1½	172	177	.38	.50
*2x1x2	190	196	.66	.86
*2x1¼x2	201	207	.66	.86
2x1½x2	218	225	.66	.86
2	256	263	.60	.78
2½x2x2½	330	340	1.20	1.57
*2½	360	370	1.05	1.37
*3x2½x3	486	500	1.65	2.15
*3	540	556	1.50	1.95

Fig. 23—Side Outlet Tees, Plain

¼	13	13.3	$0.14	$0.19
⅜	20	20.6	.16	.21
½	33	34	.20	.26
¾	52	54	.26	.34
1	64	66	.34	.44
1¼	112	115	.52	.68
1½	155	160	.66	.86
2	260	267	1.05	1.35

Fig. 24—Tees, Plain

⅛x¼	8	8.2	$0.08	$0.10
⅛	9	9.2	.07	.09
¼x⅛	10.6	10.9	.08	.10
¼x⅜	14	14.4	.09	.12
¼	13	13.3	.07	.09
⅜x⅛	12	12.3	.09	.12
⅜x¼	13.8	14	.09	.12
⅜x½	24	24.7	.11	.14
⅜x¾	30	31	.15	.20
⅜	20	20.6	.08	.10
½x⅛	19	19.5	.11	.14
½x¼	21	21.6	.11	.14
½x⅜	20.7	21	.11	.14
½x¾	31	32	.15	.20
½x¼x½	24	24.7	.11	.14
½x⅜x⅜	21	21.6	.11	.14
½x⅜x½	19	19.5	.11	.14
½x⅜x¾	32	33	.15	.20
½	28	28.8	.10	.13
¾x¼	29	30	.15	.20
¾x⅜	37	38	.15	.20
¾x½	35.8	37	.15	.20
¾x1	48	49	.19	.25
¾x⅜x⅜	34	35	.15	.20
¾x⅜x½	34	35	.15	.20
¾x⅜x¾	33	34	.15	.20
¾x½x½	35	36	.15	.20
¾x½x¾	36	37	.15	.20
¾x½x1	50	51	.19	.25
¾	44	45	.13	.17
1x¼	32	33	.19	.25
1x⅜	40	41	.19	.25
1x½	40	41	.19	.25
1x¾	58	59.7	.19	.25
1x1¼	66	68	.29	.38
1x1½	78	80	.37	.48
1x⅜x1	56	57	.19	.25
1x½x½	41	42	.19	.25
1x½x¾	40	41	.19	.25
1x½x1	55	56.6	.19	.25
1x¾x⅜	40	41	.19	.25
1x¾x½	40	41	.19	.25
1x¾x¾	52	53.5	$0.19	$0.25
1x¾x1	52.5	54	.19	.25
1	67	69	.17	.22
1¼x⅜	60	62	.29	.38
1¼x½	61	63	.29	.38
1¼x¾	77	79	.29	.38
1¼x1	78	80	.29	.38
1¼x1½	108	111	.37	.48
1¼x2	139	143	.57	.75
1¼x¾x¾	65	67	.29	.38
1¼x¾x1	75	77	.29	.38
1¼x¾x1¼	96	99	.29	.38
1¼x1x1	78	80	.29	.38
1¼x1x1¼	77	79	.29	.38
1¼	85	87	.26	.34
1½x⅜	85	87	.37	.48
1½x½	90	93	.37	.48
1½x¾	81	83	.37	.48
1½x1	100	103	.37	.48
1½x1¼	116	119	.37	.48
1½x2	140	144	.57	.75
1½x1¼x1½	112	115	.37	.48
1½	135	139	.33	.43
2x¾	124	128	.57	.75
2x1	147	151	.57	.75
2x1¼	147	151	.57	.75
2x1½	194	200	.57	.75
2x1½x1½	183	188	.57	.75
2x1½x2	178	183	.57	.75
2	193	199	.52	.68

Fig. 25—Tees, Flat Banded

¼x⅜	15	15.4	$0.09	$0.12
¼	15	15.4	.07	.09
*⅜x⅛	12	12	.09	.12
⅜x¼	17.6	18	.09	.12
⅜x½	23.7	24.4	.11	.14
⅜x¾	30	31	.15	.20
*⅜x¼x¼	16	16.4	.09	.12
*⅜x¼x⅜	18	18.5	.09	.12
⅜	22	22.6	.08	.10
*½x⅛	25	26	.11	.14
½x¼	24	24.7	.11	.14
½x⅜	29	30	.11	.14
½x¾	41.5	42.5	.15	.20
*½x1	49	50	.19	.25
*½x¼x¼	21.5	22	.11	.14
½x¼x½	28	29	.11	.14
*½x⅜x¼	23.5	24	.11	.14
½x⅜x⅜	24	24.7	.11	.14
½x⅜x½	28	28.8	.11	.14
½x⅜x¾	36	37	.15	.20
½	34	35	.10	.13
¾x¼	33	34	.15	.20
¾x⅜	35	36	.15	.20
¾x½	43	44	.15	.20
¾x1	67	69	.19	.25
*¾x1¼	75	77	.29	.38
¾x⅜x⅜	29	30	.15	.20
¾x⅜x½	37	38	.15	.20
¾x⅜x¾	39	40	.15	.20
*¾x⅜x1	53	54.5	.19	.25
¾x½x⅜	32	33	.15	.20
¾x½x½	40	41	.15	.20
¾x½x¾	47.8	47.9	.15	.20
¾x½x1	52	53	.19	.25
¾	52.8	54	.13	.17
1x¼	44	45	.19	.25
1x⅜	48	50	.19	.25
1x½	53	54	.19	.25
1x¾	70	72	.19	.25
1x1¼	95.6	98	.29	.38
1x1½	91	93.7	.37	.48
*1x¾x¾	52	53.5	.19	.25
1x¾x1	65	67	.19	.25
*1x½x⅜	43	44	.19	.25
1x½x½	47	48	.19	.25
1x½x¾	64	66	.19	.25
1x½x1	59.4	64.8	.19	.25
*1x½x1¼	84	86.5	.29	.38
1x¾x⅜	44.5	44.6	.19	.25
1x¾x½	49	50	.19	.25
1x¾x¾	66	68	.19	.25
1x¾x1	66	68	.19	.25
*1x¾x1¼	82	84	.29	.38
1	82.5	85	$0.17	$0.22
*1¼x¼	62	64	.29	.38
1¼x⅜	66	68	.29	.38
1¼x½	77	79	.29	.38
1¼x¾	98	100	.29	.38
1¼x1	106	109	.29	.38
1¼x1½	132	136	.37	.48
1¼x2	146	150	.57	.75
*1¼x¾x1	80	82	.29	.38
1¼x⅜x1¼	92	95	.29	.38
*1¼x½x1	84	86.5	.29	.38
1¼x½x1¼	80	82.4	.29	.38
*1¼x¾x½	64	66	.29	.38
1¼x¾x¾	75	77	.29	.38
1¼x¾x1	89	91.6	.29	.38
1¼x¾x1¼	92.7	95	.29	.38
*1¼x1x⅜	60	61.8	.29	.38
1¼x1x½	67	69	.29	.38
1¼x1x¾	72	74	.29	.38
1¼x1x1	100	103	.29	.38
1¼x1x1¼	103	106	.29	.38
*1¼x1x1½	128	132	.37	.48
1¼	121	124	.26	.34
*1½x¼	85	87.5	.37	.48
1½x⅜	89	91.6	.37	.48
1½x½	95	98	.37	.48
1½x¾	121	127	.37	.48
1½x1	117	120	.37	.48
1½x1¼	150	154	.37	.48
1½x2	205	211	.57	.75
*1½x½x1	90	92.7	.37	.48
*1½x½x1¼	140	144	.37	.48
1½x½x1½	150	155	.37	.48
1½x¾x¾	86	88.5	.37	.48
*1½x¾x1	92	95	.37	.48
1½x¾x1½	129	132	.37	.48
1½x1x¾	94	97	.37	.48
1½x1x1	100	103	.37	.48
1½x1x1¼	130	134	.37	.48
1½x1x1½	140	144	.37	.48
*1½x1x2	175	180	.57	.75
1½x1¼x¾	95	97	.37	.48
1½x1¼x1	108	111	.37	.48
1½x1¼x1¼	149	153	.37	.48
1½x1¼x1½	155	160	.37	.48
1½	162	166.8	.33	.43
2x⅜	158	163	.57	.75
2x½	162	167	.57	.75
2x¾	165	170	.57	.75
2x1	175	180	.57	.75
2x1¼	216	222	.57	.75
2x1½	246	253	.57	.75
2x2½	280	288	1.00	1.30
*2x3	350	360	1.45	1.90
2x¾x2	205	211	.57	.75
2x1x2	200	206	.57	.75
*2x1¼x1	139	143	.57	.75
2x1¼x1¼	168	173	.57	.75
2x1¼x1½	195	200	.57	.75
2x1¼x2	200	206	.57	.75
2x1½x1	150	154	.57	.75
2x1½x1¼	160	164	.57	.75
2x1½x1½	206	212	.57	.75
2x1½x2	223	230	.57	.75
2	259	266	.52	.68
2½x¾	222	228	1.00	1.30
2½x1	275	283	1.00	1.30
2½x1¼	270	278	1.00	1.30
2½x1½	290	299	1.00	1.30
2½x2	325	335	1.00	1.30
2½x3	448	461	1.45	1.90
2½x1½x2½	338	348	1.00	1.30
2½x2x2	310	320	1.00	1.30
2½x2x2½	357	368	1.00	1.30
2½	434	447	.90	1.20
3x1	350	360	1.45	1.90
3x1¼	325	335	1.45	1.90
3x1½	375	386	1.45	1.90
3x2	400	412	1.45	1.90
3x2½	425	437	1.45	1.90
3x2x2	352	362	1.45	1.90
3x2x3	488	503	1.45	1.90
3x2½x3	534	550	1.45	1.90
3	678	699	1.30	1.70
*3½x2	462	476	2.20	2.85
3½x2½	505	520	2.20	2.85
3½x3	590	608	2.20	2.85
3½	688	708	2.00	2.60
4x1½	619	637	$2.65	$3.45
4x2	700	721	2.65	3.45
4x2½	775	798	2.65	3.45
4x3	862	888	2.65	3.45
*4x3½	915	942	2.65	3.45
4	1262	1300	2.40	3.10
4½	1350	1390	3.00	3.90
5x2	1100	1133	4.70	6.10
5x3	1156	1190	4.70	6.10
5	1880	1936	4.25	5.55
6x2	1480	1524	6.60	8.60
6x2½	1596	1644	6.60	8.60
6x3	1813	1867	6.60	8.60
6x4	1950	2008	6.60	8.60
6	2812	2896	6.00	7.80

Fig. 33—Crosses, Flat Banded

¼x⅛	12.6	12.9	$0.10	$0.13
¼	18	18.5	.09	.12
⅜x¼	19	19.5	.12	.16
⅜	21	21.6	.11	.14
½x⅜	32	32.9	.14	.18
½	40	41	.13	.17
¾x⅜	36	37	.20	.26
¾x½	52.6	54	.20	.26
¾	59	60.7	.18	.23
1x½	60	61	.25	.33
1x¾	81	83	.25	.33
1	88	90.6	.23	.30
1¼x½	83	85	.38	.50
1¼x¾	106	109	.38	.50
1¼x1	112	115	.38	.50
1¼	149	153	.35	.46
1½x⅜	100	103	.48	.62
1½x½	108	111	.48	.62
1½x¾	130.5	134	.48	.62
1½x1	125	128.7	.48	.62
1½x1¼	168	173	.48	.62
1½	187	192.6	.44	.57
2x¾	168	173	.77	1.00
2x1	176	181	.77	1.00
2x1¼	210	216	.77	1.00
2x1½	256	264	.77	1.00
2	291	299	.70	.90
2½x1½	310	319	1.40	1.85
2½x2	328	337	1.40	1.85
2½	550	556	1.25	1.65
3x1¼	359	370	1.95	2.55
3x2	442	456	1.95	2.55
3	793	816	1.75	2.30
3½	784	807	2.65	3.45
4x2	775	798	3.45	4.50
2	1175	1210	3.15	4.10
4½	1675	1725	4.00	5.20
5	2162	2226	5.70	7.40
6	3175	3270	8.15	10.60

Fig. 32—Crosses, Plain

⅛	7.5	7.7	$0.09	$0.12
¼	14	14.4	.09	.12
⅜x¼	17	17.5	.12	.16
⅜	18.5	19	.11	.14
½x¼	14	14.4	.14	.18
½x⅜	24	24.7	.14	.18
½	35	36	.13	.17
¾x⅜	33	34	.20	.26
¾x½	41	42	.20	.26
¾	46	47	.18	.23
1x⅜	41	42	.25	.33
1x½	40	41	.25	.33
1x¾	46	47	.25	.33
1	80	82	.23	.30
1¼x¾	86	88	.38	.50
1¼x1	92	95	.38	.50
1¼	124	128	.35	.46
1½x1	105	108	.48	.62
1½x1¼	120	124	.48	.62
1½	164	169	.44	.57
2x1	118	121	.77	1.00
2x1¼	168	172	.77	1.00
2x1½	170	175	.77	1.00
2	250	257	.70	.90

†Weights per 100 Pieces are not guaranteed but are approximate and for your convenience.
*This is not a standard size fitting.

Malleable Iron Fittings


Fig. 41


Fig. 63


Fig. 49


Fig. 50


Fig. 52


Fig. 40

Fig. 41—Reducers, Flat Banded

Size Inches	Weight per 100† Black	Weight per 100† Galv.	List Price Each Black	List Price Each Galv.
⅜x⅛	8.8	9	$0.05	$0.07
⅜x¼	9.56	9.84	.05	.07
½x¼	15.3	15.7	.06	.08
½x⅜	19.3	19.8	.06	.08
¾x¼	22	22.6	.09	.12
¾x⅜	24.6	25.3	.09	.12
¾x½	24	24.7	.09	.12
1x¼	30	30.9	.12	.16
1x⅜	28.7	29.5	.12	.16
1x½	33.5	34.5	.12	.16
1x¾	38	39	.12	.16
1¼x⅜	37.5	38.6	.15	.20
1¼x½	49.6	51	.15	.20
1¼x¾	49.5	50.9	.15	.20
1¼x1	54.5	56	.15	.20
1½x¼	49	50.4	.18	.23
1½x⅜	55.5	57	.18	.23
1½x½	57.5	59	.18	.23
1½x¾	64	65.9	.18	.23
1½x1	70	72	.18	.23
1½x1¼	77	79.3	.18	.23
2x¼	98.7	101	.28	.36
2x⅜	94	96.8	.28	.36
2x½	88.4	91	.28	.36
2x¾	96.4	99	.28	.36
2x1	98.7	101	.28	.36
2x1¼	107	110	.28	.36
2x1½	115	118	.28	.36
2½x1	143	147	.50	.65
2½x1¼	150	154	.50	.65
2½x1½	151.8	156	.50	.65
2½x2	234	241	.50	.65
3x1	208	214	.75	1.00
3x1¼	197	203	.75	1.00
3x1½	216	222	.75	1.00
3x2	243	250	.75	1.00
3x2½	236	243	.75	1.00
3½x2	265	273	1.10	1.45
3½x2½	281	289	1.10	1.45
3½x3	300	309	1.10	1.45
4x1	403	415	1.40	1.85
4x1¼	361	371	1.40	1.85
4x2	400	412	1.40	1.85
4x2½	423	435	1.40	1.85
4x3	437	450	1.40	1.85
4x3½	392	403	1.40	1.85
6x4	970	999	3.75	4.90

Fig. 40—Reducers, Plain

⅛x⅛	5.8	5.8	$0.05	$0.07
⅜x⅛	8	8.2	.05	.07
⅜x¼	8	8.2	.05	.07
½x¼	13.3	13.6	.06	.08
½x⅜	15	15.4	.06	.08
¾x¼	18	18.5	.09	.12
¾x⅜	22	22.6	.09	.12

Size Inches	Weight per 100† Black	Weight per 100† Galv.	List Price Each Black	List Price Each Galv.
¾x½	22	22.6	$0.09	$0.12
1x¼	26	26.7	.12	.16
1x⅜	36.7	37.8	.12	.16
1x½	36	37	.12	.16
1x¾	39	40	.12	.16
1¼x⅜	31	32	.15	.20
1¼x½	39	40	.15	.20
1¼x¾	50	51	.15	.20
1¼x1	47	48	.15	.20
1½x½	66	68	.18	.23
1½x¾	55.5	57	.18	.23
1½x1	68	70	.18	.23
1½x1¼	67	69	.18	.23
2x⅜	89	91.6	.28	.36
2x¾	82	84	.28	.36
2x1	117	121	.28	.36
2x1¼	92	95	.28	.36
2x1½	100	103	.28	.36

Fig. 63—Extension Pieces

⅜ Pl.	10.5	10.8	$0.05	$0.07
*⅜x¼ Pl.	9	9.2	.05	.07
½ Pl.	13	13.4	.07	.09
*½x⅜ F.B.	16	16.5	.07	.09
¾ Pl.	24	24.8	.11	.14
*¾x⅜ F.B.	21	21.7	.11	.14
*¾x½ F.B.	22	22.7	.11	.14
1 Pl.	33	34	.16	.21
*1x½ F.B.	43	44	.16	.21
*1x¾ F.B.	33	34	.16	.21
1¼ Pl.	50.5	52	.18	.23
*1¼x¾ F.B.	46	47	.18	.23
*1¼x1 F.B.	45	46	.18	.23
1½ Pl.	64	66	.23	.30
1½x¾ F.B.	65	67	.23	.30
*1½x1 F.B.	58	60	.23	.30
*1½x1¼ F.B.	70	72	.23	.30
2 Pl.	92	95	.33	.43
*2x¾ F.B.	86	88.5	.33	.43
*2x1 F.B.	92	94.7	.33	.43
*2x1¼ F.B.	103	106	.33	.43
*2x1½ F.B.	100	103	.33	.43

Fig. 49—Caps, Plain

⅛	2.68	2.76	$0.03	$0.04
¼	4.8	4.9	.03	.04
⅜	8.37	8.6	.04	.05
½	14	14.4	.05	.07
¾	16.1	16.5	.08	.10
1	33.5	34.5	.10	.13
1¼	51.8	53.3	.13	.17
1½	61	62.8	.18	.23
2	97.7	100	.25	.33
*2½	214	220	.40	.52
*3	332	342	.60	.78
*3½	630	649	.80	1.05
*4	783	806	1.10	1.45

Fig. 50—Caps, Flat Banded

*½	13	13.3	$0.05	$0.07
*¾	20.5	21.1	.08	.10
*1	39	40	.10	.13
1¼	58	60	.13	.17
1½	70.7	72.8	.18	.23
2	103	106	.25	.33
2½	156	161	.40	.52
3	280	288	.60	.78
3½	361	372	.80	1.05
4	487	501	1.10	1.45
5	828	853	1.80	2.35
6	1353	1394	2.70	3.50

Fig. 145—R. H. Couplings Flat Banded

*¼	7	7	$0.05	$0.07
*⅜	10.5	10.8	.05	.07
*½	21.7	21.7	.06	.08
*¾	31.8	32.7	.09	.12
*1	45	46	.12	.16
1¼	61.8	63.6	.16	.21
1½	95	97	.21	.27
2	140	144	.34	.44
2½	218	225	.60	.78
3	290	298	.85	1.10
3½	368	372	1.25	1.60
4	550	565	1.50	1.95
5	1050	1081	2.85	3.70
6	1544	1590	3.90	5.00

Fig. 44—R. H. Couplings, Plain

⅛	4.4	4.4	$0.05	$0.07
¼	6.4	7.87	.05	.07
⅜	11.6	11.9	.05	.07
½	16.6	17	.06	.08
¾	26	26.7	.09	.12
1	49	50	.12	.16
1¼	73.7	75.9	.16	.21
1½	100	103	.21	.27
2	161	165	.34	.44
*2½	304	313	.60	.78
*3	518	533	.85	1.10
*3½	615	633	1.25	1.60
*4	737	759	1.50	1.95

Fig. 146—R. & L. Couplings Flat Banded

¼	7.2	7.4	$0.05	$0.07
⅜	11.5	11.8	.05	.07
½	24	24.7	.06	.08
¾	33	34	.09	.12
1	52	53.5	.12	.16
1¼	70	72	.16	.21

Size Inches	Weight per 100† Black	Weight per 100† Galv.	List Price Each Black	List Price Each Galv.
1½	104	107	$0.21	$0.27
2	155	160	.34	.44
*2½	225	231	.60	.78
*3	310	319	.85	1.10
*3½	362	373	1.25	1.60
*4	540	556	1.50	1.95

Fig. 45—R. & L. Couplings Plain

⅛	4.7	4.7	$0.05	$0.07
¼	8	8.2	.05	.07
⅜	14	14.4	.05	.07
½	22	23	.06	.08
¾	32.5	33	.09	.12
1	41	42	.12	.16
1¼	77.5	79.5	.16	.21
1½	105	108	.21	.27
2	142	146	.34	.44
2½	245	252	.60	.78
3	425	438	.85	1.10
3½	640	660	1.25	1.60
4	697	718	1.50	1.95

Fig. 57—Locknuts

⅛	2.5	2.5	$0.02	$0.03
¼	3.5	3.5	.02½	.03½
⅜	4.7	4.7	.02½	.03½
½	6.8	7	.03	.04
¾	11	11.4	.04	.05
1	16.5	17	.06	.08
1¼	24.5	25.3	.08	.10
1½	33	34	.10	.13
2	45	46	.12	.16
2½	106	109	.30	.39
3	140	144	.38	.50
3½	200	206	.43	.56
4	275	283	.48	.62

Fig. 67—Oval Waste Nuts

*⅛	5	5	$0.03	$0.04
¼	4	4	.03	.04
⅜	6	6	.04	.05
½	7.7	8	.04	.05
¾	9.8	10	.05	.07
1	13	13.4	.06	.08
1¼	33	33.9	.11	.14
1½	44	45	.25	.33
2	52	54	.41	.53

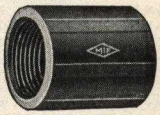
Round Waste Nuts

¼	7	7	$0.04	$0.05
⅜	9	9.2	.05	.07
½	11	11.3	.06	.08
¾	16	16.5	.07	.09

Fig. 52—Drive Caps

Size.... Inches	1	1¼	1½	2	2½	3	3½	4
Price, each....	$0.44	$0.49	$0.59	$1.08	$2.44	$3.05	$3.37	$3.66


Fig. 145


Fig. 45

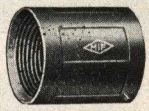

Fig. 146


Fig. 44


Fig. 57


Fig. 67

Note—Plain R. H. Couplings threaded through in sizes ⅛-4 inches. Prices same as Plain R. H. Couplings.
†Weights per 100 Pieces are not guaranteed but are approximate and for your convenience.
*This is not a standard size fitting.

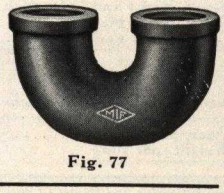
Return Bends


Fig. 78


Fig. 80

Size	Center to Center	Weight per 100 Black	Prices Each Right Hand Black	Prices Each Right Hand Galv.	Prices Each Right and Left Black	Prices Each Right and Left Galv.
Fig. 78—Close Pattern, Plain						
⅜	⅞	22	$0.13	$0.17	$0.14	$0.18
½	1	28	.16	.21	.18	.23
¾	1¼	50	.18	.23	.21	.27
1	1½	88	.24	.31	.28	.36
1¼	1¾	160	.36	.47	.42	.55
1½	2 5/16	194	.49	.64	.56	.73
2	2⅝	297	.80	1.05	.92	1.20
Fig. 80—Medium Pattern, Plain						
½	1¼	34	$0.17	$0.22	$0.19	$0.22
¾	1½	60	.20	.26	.23	.30
1	1⅞	116	.26	.34	.30	.39
1¼	2¼	162	.40	.52	.46	.56
1½	2½	224	.55	.72	.63	.68
2	3	320	.88	1.15	1.00	1.05


Fig. 78-A


Fig. 77

Size	Center to Center	Weight per 100 Black	Prices Each Right Hand Black	Prices Each Right Hand Galv.	Prices Each Right and Left Black	Prices Each Right and Left Galv.
Fig. 78-A—Close Pattern, Flat Banded						
¾	1¼	54	$0.18	$0.23	$0.21	$0.27
1	1½	90	.24	.31	.28	.36
1¼	1¾	128	.36	.47	.42	.55
1½	2 5/16	200	.49	.64	.56	.73
2	2⅝	300	.80	1.05	.92	1.20
Fig. 77—Open Pattern, Plain						
⅜	1½	31	$0.14	$0.18	$0.15	$0.20
½	1½	40	.19	.25	.22	.30
¾	2	65	.22	.29	.26	.34
1	2½	132	.29	.38	.34	.44
1¼	3	193	.44	.57	.51	.66
1½	3½	280	.62	.80	.70	.90
2	4	440	1.00	1.30	1.15	1.50
2½	4½	528	1.45	1.90	1.65	2.00
3	5	834	2.15	2.80	2.45	3.20

Plugs—Cast or Malleable Iron

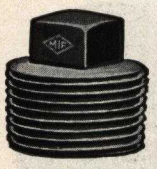


Fig. 60

Size.....Inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6
Square Head, Black, per 100	$2.00	$2.00	$2.00	$2.00	$3.00	$4.00	$5.00	$7.00	10.00	18.00	25.00	38.00	42.00	65.00	88.00	120.00
Countersunk, Black, per 100	.....	.....	4.00	4.00	6.00	8.00	9.00	11.00	15.00	.....	.....	.....	.....	.....	.....	.....
Solid, Black, per 100	.....	.....	.....	.....	6.00	8.00	9.00	11.00	15.00	27.00	38.00	.....	63.00	.....	.....	.....

For Galvanized Plugs, Double above lists.



Fig. 61

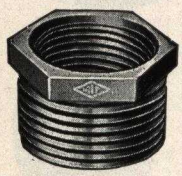


Fig. 84

Size.....Inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6

Fig. 84—Hexagon Bushings—Malleable

Price, Black, each	$0.04	$0.04	$0.04	$0.05	$0.06	$0.07	$0.09	$0.14	$0.21	$0.30	$0.40	$0.50	$0.75	$0.93	$1.25
Price, Galv., each	.08	.08	.08	.10	.12	.14	.18	.28	.42	.60	.80	1.00	1.50	1.85	2.50

Fig. 85—Faced Bushings—Malleable

Price, Black, each	$0.08	$0.08	$0.09	$0.11	$0.13	$0.17	$0.22	$0.32	$0.48	$0.70	$1.20	$1.50	$2.10	$2.60	$3.75
Price, Galv., each	.12	.12	.14	.17	.20	.25	.33	.48	.72	1.05	1.80	2.25	3.15	3.90	5.63



Fig. 85

List of Reducing Sizes—Hexagon Bushings

1/4 x 1/8	3/4 x 1/4	1 x 3/4	1 1/2 x 3/8	2 x 1/2	2 1/2 x 1 1/4	3 x 2	3 1/2 x 3	4 x 3 1/2	5 x 2	6 x 2	
3/8 x 1/8	3/4 x 3/8	1 1/4 x 1/4	1 1/2 x 1/2	2 x 3/4	2 1/2 x 1 1/2	3 x 2 1/2	4 x 1	4 1/2 x 2	5 x 2 1/2	6 x 2 1/2	
3/8 x 1/4	3/4 x 1/2	1 1/4 x 3/8	1 1/2 x 3/4	2 x 1	2 1/2 x 2	3 1/2 x 1	4 x 1 1/4	4 1/2 x 2 1/2	5 x 3	6 x 3	
1/2 x 1/8	1 x 1/8	1 1/4 x 1/2	1 1/2 x 1	2 x 1 1/4	3 x 3/4	3 1/2 x 1 1/4	4 x 1 1/2	4 1/2 x 3	5 x 3 1/2	6 x 3 1/2	
1/2 x 1/4	1 x 1/4	1 1/4 x 3/4	1 1/2 x 1 1/4	2 x 1 1/2	3 x 1	3 1/2 x 1 1/2	4 x 2	4 1/2 x 3 1/2	5 x 4	6 x 4	
1/2 x 3/8	1 x 3/8	1 1/4 x 1	2 x 1/4	2 1/2 x 3/4	3 x 1 1/4	3 1/2 x 2	4 x 2 1/2	4 1/2 x 4	5 x 4 1/2	6 x 4 1/2	
3/4 x 1/8	1 x 1/2	1 1/2 x 1/4	2 x 3/8	2 1/2 x 1	3 x 1 1/2	3 1/2 x 2 1/2	4 x 3	5 x 1 1/2	6 x 1 1/2	6 x 5	

List of Reducing Sizes—Faced Bushings

1/4 x 1/8	1 x 1/4	1 1/2 x 1/2	2 x 1 1/4	3 x 2	4 x 3	6 x 3
3/8 x 1/4	1 x 3/8	1 1/2 x 3/4	2 x 1 1/2	3 x 2 1/2	4 x 3 1/2	6 x 4
1/2 x 1/4	1 x 1/2	1 1/2 x 1	2 1/2 x 1	3 1/2 x 2	4 1/2 x 4	6 x 5
1/2 x 3/8	1 x 3/4	1 1/2 x 1 1/4	2 1/2 x 1 1/4	3 1/2 x 2 1/2	5 x 3	
3/4 x 1/4	1 1/4 x 1/2	2 x 1/2	2 1/2 x 1 1/2	3 1/2 x 3	5 x 3 1/2	
3/4 x 3/8	1 1/4 x 3/4	2 x 3/4	2 1/2 x 2	4 x 2	5 x 4	
3/4 x 1/2	1 1/4 x 1	2 x 1 1/2	3 x 1 1/2	4 x 2 1/2	5 x 4 1/2	

Gas Stop Wrenches

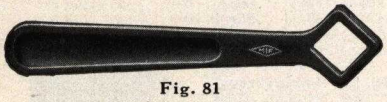


Fig. 81

Fig. 81—Carried in stock and furnished on orders unless otherwise specified. Sizes, No. 0 to 12.

Fig. 82—Square Nut Wrench, can be furnished in sizes No. 1 to 12.

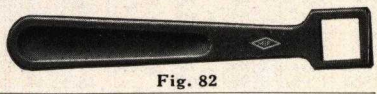


Fig. 82

Number	0	1	2	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2
Size of Nut	5/32	11/32	13/32	14/32	15/32	17/32	20/32	22/32	23/32	24/32
Number	6	6 1/2	7	7 1/2	8	8 1/2	9	10	11	12
Size of Nut	26/32	28/32	30/32	1 1/32	1 3/32	1 6/32	1 10/32	1 16/32	1 23/32	1 27/32

Prices quoted on application.



Fig. 39



Fig. 69

Rod Couplings Flat Banded—Fig. 39

Size Inches	Thread	Class	Per 100 Pieces†			
			Approx. Weight		Approx. List Price	
			Black	Galv.	Black	Galv.
3/8	14	A	8.9	9	$ 5.79	$ 6.75
7/16	12	A	10.8	11	7.02	8.25
1/2	12	B	15.9	16	4.77	5.76
5/8	11	B	20	20.6	6.00	7.42
3/4	10	B	46	47.3	13.80	17.03

†Weights per 100 Pieces are not guaranteed but are approximate and for your convenience.

Oval Flanges—Fig. 69

Size Inches	Price, Each		Size Inches	Price, Each		Size Inches	Price, Each	
	Black	Galv.		Black	Galv.		Black	Galv.
1/4	$0.06	$0.08	1	$0.20	$0.26	2 1/2	$0.71	$0.89
3/8	.08	.10	1 1/4	.24	.30	3	1.05	1.32
1/2	.12	.15	1 1/2	.36	.45	3 1/2	1.20	1.51
3/4	.14	.18	2	.48	.60	4	1.73	2.17



Fig. 150

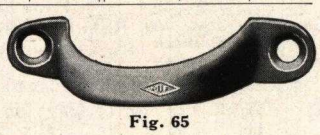


Fig. 65

Short Nipples, Hexagon Center—Fig. 150

Size.....Inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Black, Right Hand, each	$.16	$.16	$.16	$.16	$.20	$.24	$.32	$.40	$.56
Black, Right and Left, each	.20	.20	.20	.20	.25	.30	.40	.50	.70
Galv., Right Hand, each	.22	.22	.22	.22	.28	.34	.45	.56	.78
Galv., Right and Left, each	.28	.28	.28	.28	.35	.42	.56	.70	.98

Pipe Straps, Galvanized—Fig. 65

Size.....Inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Price, per lb.	$0.30	$0.30	$0.30	$0.30	$0.30	$0.30	$0.30	$0.30
Weight, per 100†	3	4	6	8	9	11	27	33

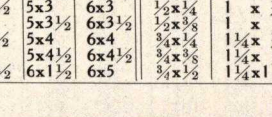


Fig. 156

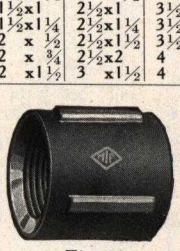


Fig. 20



Fig. 21

Size.....Inches	1/2	3/4	1	1 1/4	1 1/2	2

Fig. 156—Long Screws, Complete

Standard Length	3 1/2	4	4 1/2	5	5 1/2	6
Price, Black, each	$0.40	$0.55	$0.75	$1.00	$1.30	$1.70
Price, Galvanized, each	.50	.66	1.00	1.25	1.60	2.10

Fig. 20—Coupling Fig. 21—Follower

Couplings, Black, each	$0.12	$0.16	$0.22	$0.30	$0.40	$0.50
Couplings, Galv., each	.18	.24	.33	.45	.60	.75
Followers, Black, each	.10	.12	.15	.20	.25	.30
Followers, Galv., each	.15	.18	.22	.30	.35	.45

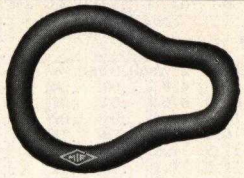


Fig. 89

Pipe Rings—Fig. 89

Furnished in sizes from 1/2 to 8 inches inclusive.



Fig. 90

Pipe Hooks—Fig. 90

Size.....Inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Price, per 100	$0.30	$0.35	$0.40	$0.50	$0.65	$0.85	$1.00	$1.30

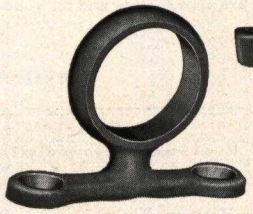


Fig. 164



Fig. 166

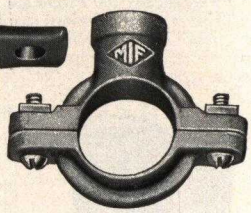


Fig. 165

Size.....Inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2

Fig. 164—Solid Ring Pipe Hangers, Malleable Iron

Price, Galv., per 100	.....	$6.50	$7.00	.....	.....	.....

Fig. 165—Extension Pipe Hanger Rings

Price, Black, each	$0.15	$0.15	$0.18	$0.22	$0.27	$0.35	$0.40
Price, Galv., each	.17	.17	.20	.25	.30	.40	.50
Tapped for, Inches	1/4	1/4	1/4	1/4	1/4	1/4	1/4

Fig. 166—Extension Pipe Hanger Plates

Price, Black, each	$0.10	$0.10	$0.10	$0.10	$0.10	$0.10	$0.10
Price, Galv., each	.15	.15	.15	.15	.15	.15	.15
Tapped for, Inches	1/4	1/4	1/4	1/4	1/4	1/4	1/4

Malleable Unions

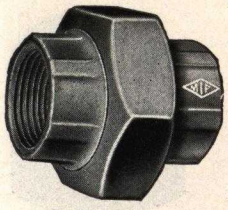


Fig. 112
Female Union

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4
Female Union, Black, each....	$0.18	$0.18	$0.20	$0.22	$0.27	$0.33	$0.46	$0.58	$0.75	$1.55	$2.10	$3.65	$4.35
Female Union, Galv., each.....	.27	.27	.30	.33	.40	.50	.70	.90	1.15	2.35	3.15	5.50	6.50
Male and Female Union, Black, ea.	.....	.....	.25	.28	.33	.40	.57	.72	.95	1.95	.....	.....	.....
Male and Female Union, Galv., ea.	.....	.....	.35	.39	.46	.57	.81	1.04	1.35	2.75	.....	.....	.....



Fig. 112-B
Male and Female Union

Union Elbows



Fig. 113
Male Union Elbow



Fig. 114
Female Union Elbow

Size.....Inches	⅜	½	¾	1	1¼	1½	2	2½
Female Union, Black, each..	$0.40	$0.42	$0.54	$0.63	$0.90	$1.05	$1.55	$2.85
Female Union, Galv., each..	.60	.63	.81	.95	1.35	1.58	2.35	4.30
Male Union, Black, each....	.45	.48	.62	.72	1.05	1.20	1.80	3.30
Male Union, Galv., each....	.70	.72	.93	1.08	1.60	1.80	2.70	4.95

Union Tees



Fig. 115
Male Union Tee

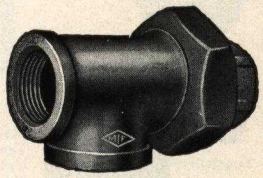


Fig. 116
Female Union Tee

Size.....Inches	⅜	½	¾	1	1¼	1½	2	2½
Female Union, Black, each..	$0.43	$0.45	$0.57	$0.70	$0.95	$1.15	$1.70	$3.20
Female Union, Galv., each..	.65	.68	.86	1.05	1.45	1.75	2.55	4.80
Male Union, Black, each....	.50	.52	.65	.80	1.10	1.30	1.95	3.70
Male Union, Galv., each....	.75	.78	1.00	1.20	1,65	1.95	2.95	5.55

Female Union Elbows and Tees will be furnished when neither Male nor Female is specified.

Circulating Boiler Fittings



Fig. 123
Elbow



Fig. 125
Coupling

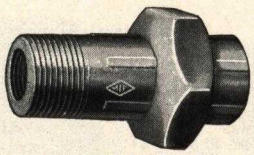


Fig. 126
Coupling with Union

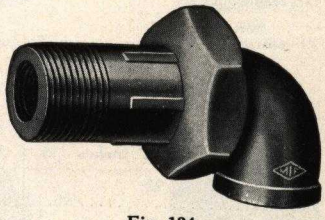


Fig. 124
Elbow with Union

Size.....Inches	Female Male ¾x¾x1	Female Male ¾x½x1	Female Male ½x½x1
Fig. 123—Boiler Elbows, price each	$0.40	$0.40	$0.40
Fig. 124—Boiler Elbows, with Unions, price each	.75	.75	.60
Fig. 125—Boiler Couplings, price each	.40	.40	.40
Fig. 126—Boiler Couplings, with Unions, price each	.75	.75	.60
Fig. 157—Boiler Tee, with Union, price each	.....	.80	.....

Boiler Drain Elbow, 4-inch C-F, ½x1 Galvanized, each.....$0.35

Boiler fittings are read as follows: First, the Female end; second, the internal thread of the Male end; third, the external thread of the Male end.

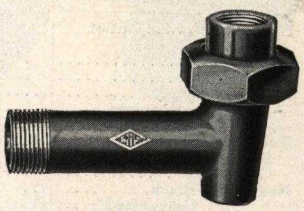


Fig. 157
Tee with Union



Fig. 158

Pipe Flanges
Fig. 71

Wash Tray Tees

Size.....Inches	½
Price, Galvanized, each, Short Pattern.....	$0.20
Price, Galvanized, each, Long Pattern.....	.25



Fig. 71

Size.....Inches	⅜	½	¾	¾	1	1¼
Diameter of Flange.....	3	3	3½	4	4	4½
Price, Black, each.....	$0.13	$0.14	$0.15	$0.16	$0.16	$0.25
Price, Galv., each.....	.26	.28	.30	.32	.32	.50
Size.....Inches	1½	2	2½	3	3½	4
Diameter of Flange.....	5	6	7	7½	8	9
Price, Black, each.....	$0.30	$0.42	$0.62	$0.75	$0.90	$1.15
Price, Galv., each.....	.60	.84	1.24	1.50	1.80	2.30

Branford Unions

BRASS-TO-IRON SEATS

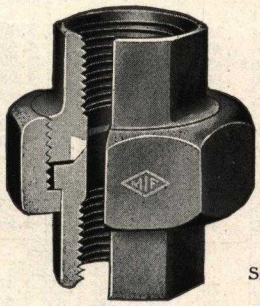


Fig. 147
Sizes ⅛—4 inches

Fig. 147
Branford
300 Pounds

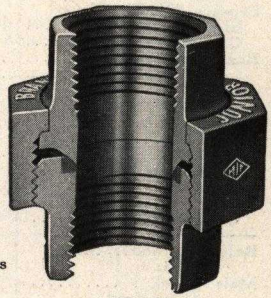


Fig. 200
Sizes ⅛—2 inches

Fig. 200
Branford Jr.
250 Pounds

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼
Black, each.....	$0.30	$0.30	$0.40	$0.50	$0.60	$0.80	$1.20
Galvanized, each...	.45	.45	.60	.75	.90	1.20	1.80
Size.....Inches	1½	2	2½	3	3½	4	
Black, each.....	$1.60	$2.00	$3.20	$4.80	$ 8.00	$10.00	
Galvanized, each.....	2.40	3.00	4.80	7.20	12.00	15.00	



Fig. 160
Elbow



Fig. 161
45° Elbow



Fig. 162
Tee



Fig. 163
Cross



Fig. 164
Coupling



Fig. 168
Reducer



Fig. 210
Street Elbow

Extra Heavy Malleable Iron Fittings for 250 Pounds Steam Working Pressure

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6
Elbows, each	$0.20	$0.25	$0.30	$0.35	$0.40	$0.55	$0.70	$0.90	$1.50	$2.40	$ 3.25	$ 4.25	$ 5.50	$ 6.50	$ 9.50
45° Elbows, each	.25	.30	.35	.42	.50	.65	.85	1.10	1.85	2.85	.....	5.00	6.25	7.50	10.50
Street Elbows, each	.25	.30	.40	.45	.50	.70	.90	1.15	.....	.....	.....	.....	.....	.....	.....
Tees, each	.30	.40	.45	.50	.60	.80	1.05	1.35	2.25	3.60	5.00	6.50	8.25	9.75	14.25
Couplings, each	.20	.25	.30	.35	.40	.55	.70	.90	1.50	2.40	3.25	4.25	5.50	6.50	9.50
Crosses, each	.60	.80	.90	1.00	1.20	1.60	2.10	2.70	4.50	7.20	10.00	13.00	15.70	19.50	28.50

Size.....Inches	¾x½	1x¾	1¼x¾	1½x1	1½x1	1½x1¼	2x1¼	2x1½	2½x2	3x2½
Reducers, each	$0.30	$0.40	$0.45	$0.45	$0.55	$0.55	$0.70	$0.70	$1.30	$2.25

For Galvanized Extra Heavy Fittings add 50% to the above lists.

Reducing Extra Heavy Elbows

¾x ½	1¼x1	1½x1¼	2 x1½	2½x2	3 x2½
1 x ¾	1½x1	2 x1¼	2½x1½	3 x2	.....

Note—A reducing extra heavy elbow or tee takes same list as straight size of largest outlet.

Reducing Extra Heavy Tees

¾x ½	1¼x1	2 x1¼	2½x2	4 x2½	6 x3
1 x ¾	1½x1	2 x1½	3 x2	4 x3	6 x4
1¼x ¾	1½x1¼	2½x1½	3 x2½	5 x4	.....

Ball Pattern Railing Fittings, Piece Prices

For Illustrations, see following page

Sizes.....Inches	½	¾	1	1¼	1½	2	2½	3
Elbows, 90°, Fig. 92:								
Black	$0.10	$0.12	$0.14	$0.22	$0.30	$0.44	$1.00	$2.00
Galvanized	.13	.15	.18	.29	.39	.57	1.30	2.60
Reducing—Black	.....	.....	.16	.25	.35	.51	1.15	2.30
Galvanized	.....	.....	.21	.32	.45	.66	1.50	3.00
Elbows, 90°, Side Outlet, Fig. 93:								
Black	.19	.23	.28	.44	.60	.88	2.00	3.35
Galvanized	.25	.30	.36	.57	.78	1.15	2.60	4.35
Reducing—Black	.....	.....	.32	.51	.70	1.05	.....	.....
Galvanized	.....	.....	.42	.66	.90	1.35	.....	.....
Tees, 90°, Fig. 94:								
Black	.13	.16	.19	.28	.40	.57	1.30	2.60
Galvanized	.17	.21	.25	.36	.52	.75	1.70	3.40
Reducing—Black	.....	.....	.22	.32	.46	.66	1.50	3.00
Galvanized	.....	.....	.29	.42	.60	.86	1.95	3.90
Tees, 90°, S. O., Fig. 95:								
Black	.25	.31	.37	.57	.80	1.15	2.60	5.00
Galvanized	.33	.40	.48	.75	1.05	1.50	3.40	6.50
Reducing—Black	.....	.....	.43	.66	.92	1.32	.....	.....
Galvanized	.....	.....	.56	.86	1.20	1.70	.....	.....
Crosses, 90°, Fig. 96:								
Black	.18	.21	.25	.38	.53	.77	1.15	3.40
Galvanized	.23	.27	.33	.49	.70	1.00	2.30	4.45
Reducing—Black	.....	.....	.29	.45	.62	.90	2.05	3.90
Galvanized	.....	.....	.38	.58	.80	1.15	2.65	5.05
Crosses, 90°, S. O., Fig. 97:								
Black	.32	.38	.46	.70	1.00	1.45	3.15	6.00
Galvanized	.42	.50	.60	.91	1.30	1.90	4.10	7.80
Floor Flanges, Square, Fig. 191:								
Black	.12	.16	.20	.34	.50	.80	1.55	2.75
Galvanized	.16	.21	.26	.44	.65	1.05	2.00	3.60
Ball Ornaments, Male, Fig. 98:								
Male—Black	.12	.16	.20	.28	.38	.60	1.25	2.15
Galvanized	.16	.21	.26	.36	.50	.78	1.65	2.80
Female—Black	.16	.20	.28	.38	.60	1.25	2.15	.....
Galvanized	.21	.26	.36	.50	.78	1.65	2.80	.....
Elbows, 45°, Acute, Fig. 103:								
Black	.....	.....	.60	1.00	1.30	.....	.....	.....
Galvanized	.....	.....	.78	1.30	1.70	.....	.....	.....

Size.....Inches	½	¾	1	1¼	1½	2	2½	3
Elbows, 45°, S. O., Acute, Fig. 104:								
Black	.....	.....	$0.70	$1.10	$1.35	.....	.....	.....
Galvanized	.....	.....	.91	1.45	1.75	.....	.....	.....
Elbows, 45°, Obtuse, Fig. 105:								
Black	$0.12	$0.15	.20	.30	.40	$0.65	$1.40	$2.50
Galvanized	.16	.20	.26	.39	.52	.85	1.85	3.25
Elbows, 45°, S. O., Obtuse, Fig. 106:								
Black	.....	.30	.40	.60	.80	.....	.....	.....
Galvanized	.....	.39	.52	.78	1.05	.....	.....	.....
Tees, 45°, Fig. 107:								
Black	.....	.50	.70	1.10	1.35	2.25	3.50	.....
Galvanized	.....	.65	.91	1.45	1.75	2.95	4.50	.....
Tees, 45°, S. O., Fig. 108:								
Black	.....	.60	.80	1.25	1.50	2.40	2.90	.....
Galvanized	.....	.78	1.05	1.63	1.95	3.10	5.10	.....
Crosses, 45°, Fig. 109:								
Black	.....	.60	.80	1.25	1.50	2.40	.....	.....
Galvanized	.....	.78	1.05	1.63	1.95	3.10	.....	.....
Crosses, 45°, S. O., Fig. 110:								
Black	.....	.75	1.00	1.50	1.80	2.90	.....	.....
Galvanized	.....	.98	1.30	1.95	2.35	3.80	.....	.....
Flanges, 45°, Fig. 111:								
Black	.....	.....	.55	.70	.80	.95	.....	.....
Galvanized	.....	.....	.71	.91	1.05	1.24	.....	.....

Size.....Inches	½–3	¾–3½	1–4	1¼–4	1½–5	2–6	2½–7	3–7½
Flanges, Fig. 91-a, C. I. Pattern:								
Black	$0.10	$0.15	$0.16	$0.16	$0.30	$0.42	$0.62	$0.75
Galvanized	.13	.20	.21	.21	.39	.55	.81	1.00
Fig. 91, Malleable:								
Black	.13	.20	.21	.21	.39	.55	.81	.98
Galvanized	.17	.26	.27	.27	.51	.72	1.06	1.28

Note—Flanges with different size bases than above take price determined by base size. Example: ¾-3 takes black prices; C. I. pattern, .16; Malleable, .21.

Flanges, Crowfoot, Fig. 100:								
Black	.10	.11	.13	.17	.25	.35	.65	.57
Galvanized	.13	.14	.17	.22	.32	.45	.85	1.00

Note—In ordering Railing Fittings be careful to state whether **right-hand** or **left-hand** threads are desired. Where fittings are required having right and left outlets, please describe fully which are wanted **right-hand** and which **left-hand.** A careful observance of this will save much trouble and secure the accurate filling of your orders.

To construct a railing two pipes high, the upper outlet of all fittings used in lower pipe should be **with left-hand thread,** but when orders are sent us without specifying how outlets are to be tapped, all fittings will be furnished **right-hand.**

As the fittings do not need to be steam or water tight, a sufficiently good thread to screw up well and neatly can be made by running a left-hand tap into any outlet threaded right-hand.

Ball Pattern Railing Fittings


Fig. 92
Elbow, 90°


Fig. 91
Floor Flange

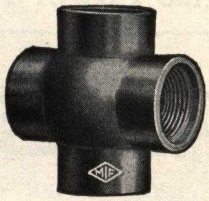

Fig. 91-A
Floor Flange


Fig. 100
Floor Flange


Fig. 93
Side Outlet Elbow


Fig. 94
Tee, 90°


Fig. 95
Side Outlet Tee


Fig. 96
Cross

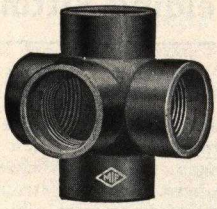

Fig. 97
Side Outlet Cross


Fig. 98
Ball Ornament


Fig. 101
Floor Flange, Globe Pattern


Fig. 103
Elbow, Acute, 45°


Fig. 104
S. O. Acute Ell, 45°


Fig. 105
Elbow, Obtuse, 45°


Fig. 106
S. O. Ell, Obtuse, 45°

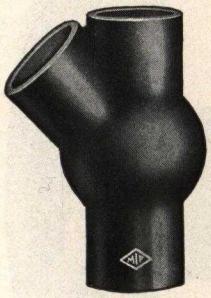
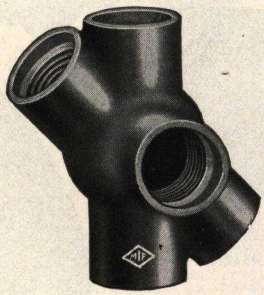
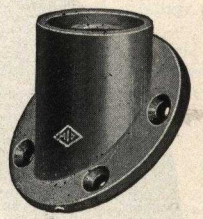

Fig. 107
Tee, 45°


Fig. 108
S. O. Tee, 45°


Fig. 109
Cross, 45°


Fig. 110
S. O. Cross 45°


Fig. 111
Flange, 45°

List of Sizes—90° and 45° Fittings

Fig. 92 Elbows, 90°

½
¾
1x¾
1
1¼x1
1¼
1½x1
1½x1¼
1½
2x1¼
2x1½
2
2½x2
2½
3x2
3x2½
3

Fig. 109 Crosses, 45°

¾ 1½
1 2
1¼

Fig. 93 S. O. Elbows, 90°

½
¾
1x¾x¾
1x1x¾
1
1¼x1x1
1¼x1¼x1
1¼
1½x1x1
1½x1¼x1¼
1½x1½x1
1½x1½x1¼
1½
2x1¼x1¼
2x1½x1½
2x2x1¼
2
2½
3

Fig. 94—Tees, 90°

½
½x1
¾
¾x1
¾x1¼
1x1x¾
1
1x1x1¼
1x1x1½
1¼x1¼x¾
1¼x1¼x1
1¼
1¼x1¼x1½
1¼x1¼x2
1½x1½x1
1½x1½x1¼
1½
1½x1½x2
2x2x1¼
2x2x1½
2
2x2x2½
2½x2
2½
3x1½
3x2
3x2½
3

Fig. 95 S. O. Tees, 90°

½
¾
1x1x¾x¾
1
1¼x1¼x1x1
1¼
1½x1½x1x1
1½x1½x1¼x1¼
1½
2x2x1¼x1¼
2x2x1½x1½
2
2½x2½x2x2
2½
3x3x1½x1½
3x3x2x2
3x3x2½x2½
3

Fig. 111 Flanges, 45°

1 1½
1¼ 2

Fig. 96 Crosses, 90°

½
¾
1x1x½x½
1x1x¾x¾
1
1¼x1¼x1x1
1¼
1½x1½x1x1
1½x1½x1¼x1¼
1½
2x2x1¼x1¼
2x2x1½x1½
2
2½x2½x2x2
2½
3x3x1½x1½
3x3x2x2
3x3x2½x2½
3

Fig. 97 S. O. Crosses, 90°

½ 1½
¾ 2
1 2½
1¼ 3

Fig. 98 Ball Ornaments

½ 1½
¾ 2
1 2½
1¼ 3

Fig. 100 Floor Flanges

½ 1½
¾ 2
1 2½
1¼ 3

Fig. 101 Floor Flanges Globe Pattern

½ 1½
¾ 2
1 2½
1¼ 3

Fig. 103 Ells, Acute, 45°

1 1½
1¼

Fig. 104 S. O. Ells, Acute, 45°

1 1½
1¼

Fig. 105 Elbows, Obtuse, 45°

½ 1½
¾ 2
1 2½
1¼ 3

Fig. 106 S. O. Ells, Obtuse, 45°

¾ 1¼
1 1½

Fig. 107 Tees, 45°

¾ 2
1 2½
1¼ 3
1½

Fig. 108 S. O. Tees, 45°

¾ 2
1 2½
1¼ 3
1½

Fig. 110 S. O. Crosses, 45°

¾ 1½
1 2
1¼

Specify whether pattern desired is similar or opposite to cut.

Figs. 91 and 91-A—Light Railing Flanges or Floor Flanges

Size.....Inches	⅜	½	½	¾	¾	¾	1	1	1¼	1¼	1½	1½	2	2	2½	3	3½
Diameter of Flange.....Inches	3	*3	3½	3	*3½	4	3½	*4	*4	5	*5	6	5	*6	*7	*7½	*7½

*These sizes are furnished when flange diameter is not specified.

See Preceding Page for Piece Prices on Railing Fittings

MIDWEST PIPING & SUPPLY COMPANY, INC.

MAIN OFFICE—1450 South Second Street—ST. LOUIS, MO.

SHOPS: ST. LOUIS, MO.; LOS ANGELES, CAL.; PASSAIC, N. J. (Ballwood Div.); and HOUSTON, TEXAS

CHICAGO OFFICE: 20 No. Wacker Drive LOS ANGELES OFFICE: 520 Anderson Street TULSA OFFICE: 733 Mayo Building
NEW YORK OFFICE (Ballwood Div.): 30 Church Street HOUSTON OFFICE: 600 Bringhurst Street

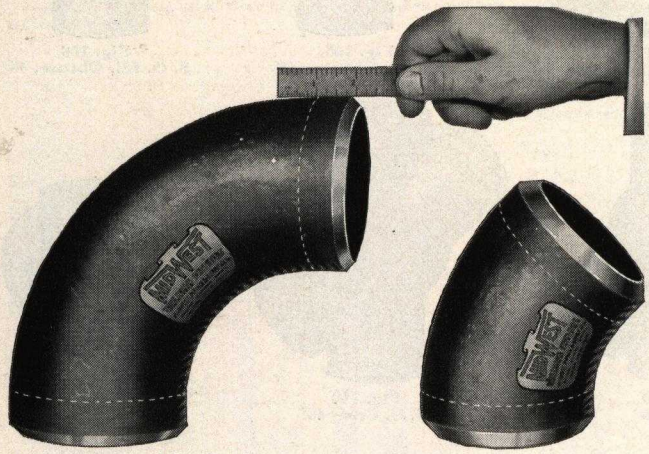
Pipe Welding Fittings—Also Power Plant and Industrial Piping

Midwest Welding Fittings

MIDWEST
TRADE-MARK

Engineers and contractors who are experienced with welded piping have been quick to recognize the advantages of the Midwest Welding Fittings shown here. It is not strange that many of these fittings were first offered to industry by Midwest—and that a number of them have highly desirable exclusive features. Midwest has been in the piping business for 27 years and has accumulated much experience in all its phases; Midwest was among the first to appreciate the possibilities of pipe welding and to use welding in its fabrications.

Space limitations make it impossible to here adequately describe each of the Midwest Welding Fittings. All the facts are given in Bulletin WF-10. Write to the nearest Midwest office for a copy.



Midwest Welding Ells—90° and 45°

The dotted lines indicate the *longer tangents* provided only on Midwest Welding Ells. Tangent length is ¼ of nominal fitting diameter; a 12-in. Midwest Ell has tangents 3 ins. long. Advantages of these longer tangents are:

1. They make it possible to more quickly and accurately line up the pipe and fitting.
2. They make it easier to use lining-up clamps than when fittings have very short tangents or none at all.
3. They remove the weld from the point of maximum bending stress (the end of the arc).
4. They reduce the amount of pipe required.
5. They frequently eliminate the use of a short nipple and the extra circumferential weld it requires.
6. They make it possible to slip on forged steel flanges and weld them front and back.

The radius of every Midwest Welding Ell is 1½ times the nominal diameter: a 4-in. Ell has a 6-in. radius. It is generally recognized that this is the shortest radius that can be used without encountering excessive pressure drop. This radius also reduces the amount of pipe required and makes the circumferential welds more accessible.

Unusual dimensional accuracy and uniformity are other important advantages of Midwest Ells. Every Ell is first made slightly *oversize*—it is then reheated and *reduced* to correct size by a special operation in *compression.*

This process was developed by Midwest, and is used exclusively by Midwest.

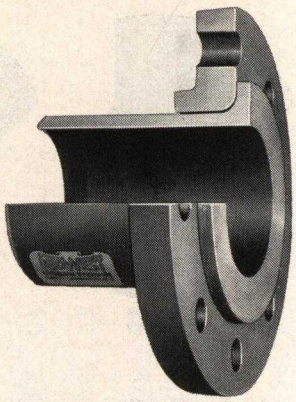
Each Ell is made from one piece of plate by a patented Midwest process. The welded longitudinal seam along the inner circumference is made with a high tensile strength alloy rod and has a bead that makes it considerably heavier than the wall thickness; consequently, it acts as a reinforcing rib.

Final working of the metal is in compression at a forging heat—it is not extruded or stretched. Normalizing both plate and weld relieves any stresses set up either in forming or welding.

Made from the same material as Grade A seamless steel pipe, Midwest Ells have the same coefficient of expansion and welding characteristics. They are also made from Reading Puddled Iron. Stock sizes in both standard and extra heavy weight are 1 to 18 ins. Made larger and from any standard alloy on special order.

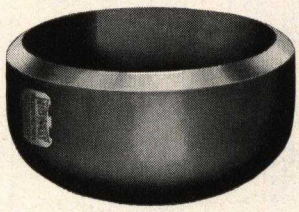
Midwest Van Stone Welding Nipples

Loose flange has advantage over welded flange because bolt holes need not be carefully lined up before welding; result is a saving in time. Lap is *forged* by same patented process used for Midwest fabricated piping. Other features of lap: at least full pipe wall thickness, large radius, machined on back of lap and radius, phonographic finish for better gasket retention. Globack, Midwest and tongue and groove laps can be provided. End beveled for welding can also be shaped to fit header. Nipples made from wrought steel pipe and genuine wrought iron pipe; flanges are forged steel. Stock sizes 2 to 16 ins.



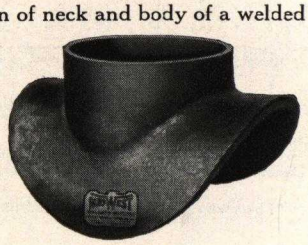
Midwest Welding Heads

The ellipsoidal form reduces unit stress in the metal to a minimum. The long tangent puts the circumferential weld to the pipe entirely in tension—it is not subjected to shear and bending. Application is much easier and a neat appearing job is assured. Made from mild steel plate and genuine wrought iron in standard and extra heavy weight. Sizes 1½ to 24 ins.



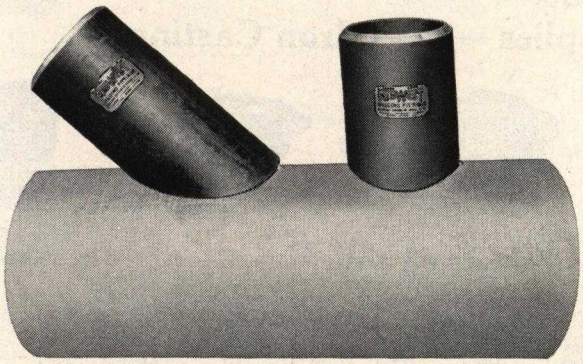
Midwest Welding Saddles

It not only reinforces the junction of neck and body of a welded header but also compensates for the weakening of header body that results from loss of the metal cut out for the neck opening. Tests proved this saddle materially increases the strength of a welded header over customary gusset plate construction. Made from flanging quality steel; sizes from 2x2 to 24x24 ins.



Midwest Shaped Welding Nipples

Eliminate all templates when saddling one pipe upon another; save time and assure accurate fit. Shaped and square ends both



beveled for welding. Made from standard weight and extra heavy steel pipe and genuine wrought iron pipe; sizes 1¼ to 12 ins. Provided with any lap or flange on special order; other angles also available.

Midwest Welding Reducers

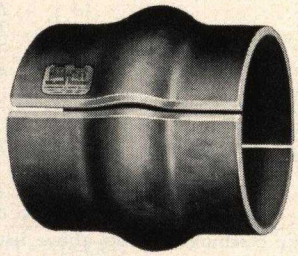
Economical and efficient means of reducing from one pipe size to another. Uniform and easy taper minimizes the pressure drop. Tangents long enough for quick, accurate lining up with pipe; also for use of slip-on flanges. Ends beveled for welding. Made from standard weight and extra heavy wrought steel and genuine wrought iron; eccentric and concentric sizes 1x¾ to 12x5 ins.

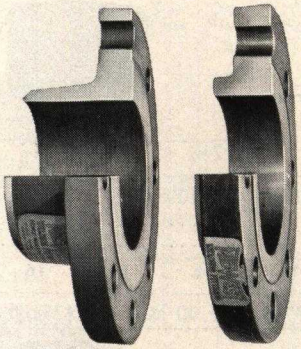




Midwest Welding Sleeves

Used to reinforce a butt line weld between two pieces of pipe, it relieves the butt weld of any bending stress and much of the tensile stress to which it would otherwise be subjected. Transverse recess in sleeve permits its application over the conventional butt line weld. Made from mild steel plate; sizes 4 to 24 ins.





Midwest Welding Flanges

The slip-on flange is slipped over end of pipe or Midwest Ell and then welded front and back. It is easier to line up than the butt welding flange which requires only one weld and saves pipe equal approximately to length of flange hub. Both flanges are forged from steel that welds easily and are accurately machined. Sizes include 24 ins.

High Pressure Flanged Joints

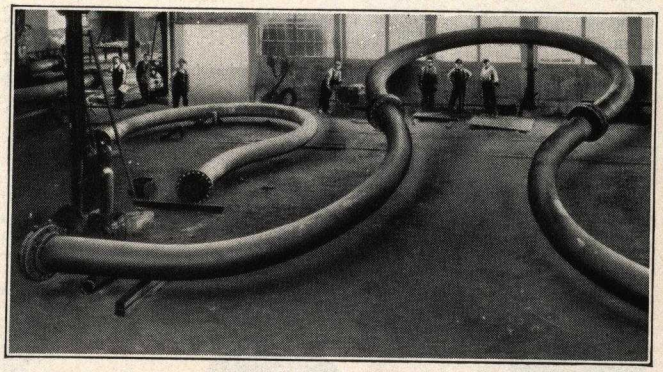
Midwest is prepared to furnish any type of flanged joint for any pressure and temperature conditions; among the joints regularly fabricated are Van Stone, Tongue and Groove, Globack, Midwest and Sarlun. Midwest has perfected a special process for *forging* the laps to practically any required thickness. Physical property tests and photomicrographs have proved these laps at least equal to the original pipe.

Pipe Welding

Each Midwest plant has complete and modern facilities for the various types of autogenous welding and a corps of highly skilled welders who have specialized in pipe welding. Modern procedure control governs all Midwest welding work.

Pipe Bends

Pipe bends of all kinds, from standard or extra heavy pipe or tubing, are fabricated by Midwest, true to dimensions, free from buckles and having any type flange joint. These units are



Bend Contains 92 Feet 4⅜ Inches of 18-Inch O. D. Seamless Tubing

used to care for expansion and contraction, and to reduce friction and pressure losses encountered with standard fittings. Sizes are to 30 ins., inclusive.

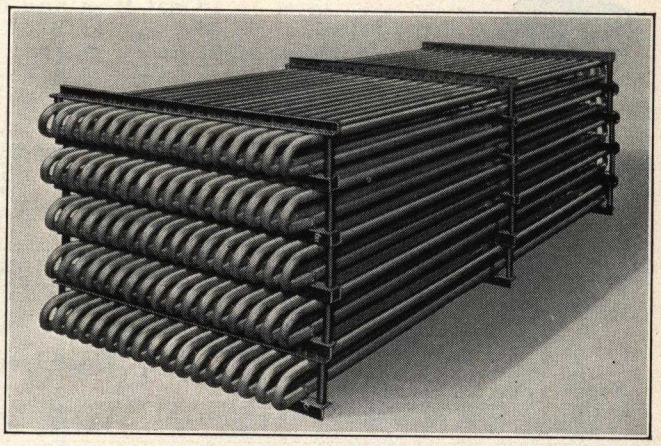
To take care of expansion bends requiring more than a single random length of pipe (16 to 20 ft.), Midwest stocks double random pipe in the sizes in which it is available. Greater lengths provided by welding two or more random lengths or by intermediate joints.

Pipe Coils

Manufactured in any size or form desired, the limitations being the physical properties of the pipe. Piping is continuously end-welded by the electrical resistance, electric arc or acetylene method. After welding, pipe is machine coiled, thus insuring perfect uniformity throughout the coil.

Send for Bulletins

Write for bulletins describing in detail Midwest Products and the Greater Midwest Piping Service.



Condenser Coils Designed by Midwest

JAY H. NEWBURY & SON, INC. GOSHEN, N. Y.

Manufacturers of

Steam Fittings—Plumbing Supplies—Grey Iron Castings



Fig. 1
Plug



Fig. 3
Countersunk
Plug



Fig. 4
Radiator Plug



Fig. 5
Flanged Plug



Fig. 58
Barrel Plug



Fig. 59
Slotted Plug

Cast Iron Plugs

Size Pipe.....Inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2
Regular	$0.02	$0.02	$0.02	$0.02	$0.03	$0.04	$0.05	$0.07	$0.10	$0.18	$0.25	$0.38
Regular, L. H.	.....	.....	.....	.04	.06	.08	.09	.11	.15	.....	.....	.....
Solid	.....	.....	.04	.04	.06	.08	.09	.11	.15	.27	.38	.57
Countersunk	.....	.....	.04	.04	.06	.08	.09	.11	.15	.30	.40	.92
Radiator	.....	.....	.....	.....	.....	.....	.10	.14	.20	.....	.....	.....
Slotted	.03	.04	.05	.....	.....	.....	.....	.....	.....	.....	.....	.....

Size Pipe.....Inches	4	4 1/2	5	6	7	8	9	10	12	14	15	16
Regular	$0.42	$0.65	$0.88	$1.20	$1.85	$2.75	$3.25	$3.75	$5.00	$12.50	$15.00	$20.00
Solid	.63	1.00	1.35	1.80	2.80	4.15	5.00	5.75	7.50	18.75	22.50	30.00
Countersunk	1.10	1.60	2.00	3.50	5.00	5.00	10.00	11.00	12.00	.....	.....	.....

Galvanized Plugs double above list prices.
Flanged Plugs—1/2, 3/4, 1, 1 1/4, 1 1/2, 2 inches. Prices on application.
Barrel Plugs—3/4, 1 1/2, 2 inches. Prices on application.

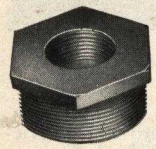


Fig. 6
Bushing



Fig. 7
Faced Bushing

Cast Iron Bushings



Fig. 8
Radiator
Bushing



Fig. 600
Tank Bushing

Size Pipe.....Inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Plain	$0.04	$0.04	$0.04	$0.05	$0.06	$0.07	$0.09	$0.14	$0.21	$0.30	$0.40	$0.50
Plain, Eccentric	.....	.....	.....	.....	.....	.22	.25	.27	.42	.60	.80	1.00
Radiator	.....	.....	.....	.....	.....	.11	.14	.21	.....	.....	.....	.....
Radiator, Eccentric	.....	.....	.....	.....	.....	.22	.25	.27	.....	.....	.....	.....
Faced, Black	.08	.08	.09	.11	.13	.17	.22	.32	.48	.70	1.20	1.50
Faced, Galvanized	.12	.12	.14	.17	.20	.25	.33	.48	.72	1.05	1.80	2.25

Size Pipe.....Inches		4 1/2	5	6	7	8	9	10	12	14	15	16
Plain	.....	$ 0.75	$0.93	$1.25	$1.87	$2.75	$3.25	$3.75	$5.00	$12.50	$15.00	$22.00
Plain, Eccentric	.....	1.50	1.85	2.50	.....	.....	.....	.....	.....	.....	.....	.....
Faced, Black	.....	2.10	2.60	3.75	5.60	8.25	9.75	11.25	15.00	37.50	45.00	.....
Faced, Galvanized	.....	3.15	3.90	5.63	8.40	12.37	14.62	16.87	22.50	56.25	67.50	.....

Galvanized Plain, Plain Eccentric, Radiator and Radiator Eccentric Bushings, double above lists.
Tank Bushings, double-tapped.—Prices on application.



Fig. 10

Cast Iron and Malleable Iron Caps

Fig. 10—Cast Iron

Fig. 68—Malleable Iron



Fig. 68

Size Pipe.....Inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2
Cast Iron	.....	.....	.....	$0.03	$0.05	$0.08	$0.14	$0.20	$0.26	$0.40	$0.54	$0.75
Malleable Iron, Black	$0.03	$0.03	$0.04	.05	.08	.10	.13	.18	.25	.....	.....	.....
Malleable Iron, Galvanized	.04	.04	.05	.07	.10	.13	.17	.23	.33	.....	.....	.....

Size Pipe.....Inches	4	4 1/2	5	6	7	8	9	10	12	14	15	16
Cast Iron	$0.87	$1.05	$1.20	$1.55	$2.50	$2.85	$4.75	$5.50	$7.00	$19.00	$22.00	$25.00

Galvanized Cast Iron Caps, double above list prices.

Cast Iron Locknuts



Fig. 17
Locknut

Sizes are Pipe Sizes in inches.

1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	9	10	12
$0.04	$0.04	$0.06	$0.06	$0.07	$0.08	$0.10	$0.12	$0.25	$0.27	$0.34	$0.47	$0.64	$0.85	$0.90	$1.30	$1.70	$2.35	$2.70	$3.00	$4.00

Galvanized Locknuts, double above list prices.



Fig. 11
Flange Union]

Cast Iron Flange Unions

Size Pipe...Inches	½	¾	1	1¼	1½	2	2½	3	3½	4	4½
Regular	$0.40	$0.46	$0.52	$0.64	$0.78	$1.00	$1.25	$1.50	$1.80	$2.10	$2.70
Extra Heavy	.60	.70	.80	1.00	1.15	1.50	1.90	2.25	2.70	3.15	4.00

Size Pipe.....Inches	5	6	7	8	9	10	12	14	15	16
Regular	$3.15	$3.95	$5.50	$7.00	$10.00	$11.50	$16.00	$28.00	$35.00	$60.00
Extra Heavy	4.75	6.00	8.25	10.50	15.00	17.25	24.00	.....	.....	.....

Galvanized Flange Unions double above list prices.



Fig. 13
Extra Heavy
Flange Union



Fig. 15
Oil Country
Flange Union

Cast Iron Oil Country Flange Unions

Size Pipe.....Inches	1	1¼	1½	2	2	2½	3	3
No. Bolts	4	4	4	4	5	4	4	5
Price	$1.00	$1.00	$1.20	$1.50	$2.00	$1.75	$2.00	$2.50

Cast Iron Lead Gasket Flange Unions

Size Pipe.....Inches	2	3	4
No. Bolts	5	5	6

Furnished also with Caulking Recess. Prices on application.



Fig. 61
Lead Gasket
Flange Union

Cast Iron Common Flanges

Size Pipe....Inches	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8	9	10	12	14	15	16
Diameter, inches:																						
3	.10	.10																				
3½	.15	.15	.15	.15	.16																	
4	.22	.22	.22	.16	.16																	
4½	.25	.25	.25	.25	.25	.22																
5	.35	.35	.30	.30	.30	.30	.35															
5½	.45	.45	.45	.40	.40	.40	.35	.40														
6	.50	.50	.50	.42	.40	.40	.42	.42	.50													
6½	....	.65	.60	.60	.60	.55	.50	.50	.50	.65												
7	....	.75	.75	.75	.70	.70	.62	.62	.62	.75												
7½	....	.90	.90	.90	.85	.85	.80	.80	.75	.85	.90											
8	....	1.00	1.00	1.00	.95	.95	.90	.90	.90	.90	.90											
8½	....	1.25	1.25	1.25	1.15	1.15	1.10	1.10	1.10	1.00	1.00											
9	....	....	....	1.35	1.35	1.35	1.30	1.25	1.15	1.15	1.15	1.15	1.40									
9¼	....	....	....	....	1.90	1.90	1.75	1.60	1.60	1.50	1.25	1.50	1.50									
10	....	....	....	....	2.25	2.25	2.15	2.00	1.80	1.50	1.50	1.50	1.50									
11	....	....	....	....	....	....	2.50	2.50	2.25	2.25	2.00	1.75	1.75	1.75	2.20							
12	....	....	....	....	....	....	....	3.00	3.00	2.75	2.50	2.50	2.20	2.20	2.20	2.80						
12½	....	....	....	....	....	....	....	3.00	3.00	2.75	2.50	2.50	2.20	2.20	2.20	2.80						
13	....	....	....	....	....	....	....	....	3.50	3.50	3.25	3.00	3.00	2.80	2.80	2.80						
13½	....	....	....	....	....	....	....	....	3.50	3.50	3.25	3.00	3.00	2.80	2.80	2.80						
14	....	....	....	....	....	....	....	....	4.00	4.00	3.75	3.75	3.50	3.25	3.25	3.25	3.75	4.00				
15	....	....	....	....	....	....	....	....	....	....	....	....	....	....	4.00	4.00	4.00	4.50				
16	....	....	....	....	....	....	....	....	....	....	....	....	....	....	5.00	5.00	5.00	5.00	6.00			
17	....	....	....	....	....	....	....	....	....	....	....	....	....	....	6.50	6.50	5.75	5.75	7.00			
18	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	8.00	8.00	7.00	7.00			
19	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	7.50	7.50			
20	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	8.50	8.50		
21	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	9.50		
22¼	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	14.00	
23½	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	18.00



Fig. 18



Fig. 22
Cast Iron
Curved Flanges
Prices on application.



Fig. 23
Cast Iron
Van Stone
Flanges
High Hub, Standard and Extra Heavy. Prices on application.



Fig. 63
Cast Iron
Bulk Head
Flanges
Double Boss, Standard and Extra Heavy. Prices on application.

Cast Iron Companion Flanges

(Not Illustrated)

STANDARD								EXTRA HEAVY							
Size Pipe	Diam. Flange	Companion		Reducing		Blind		Size Pipe	Diam. Flange	Companion		Reducing		Blind	
		Faced	F. & D.	Faced	F. & D.	Faced	F. & D.			Faced	F. & D.	Faced	F. & D.	Faced	F. & D.
1	4¼	$0.55	$0.80	$1.05	$1.30	$0.85	$1.10	1	4⅞	$0.95	$1.30	$1.60	$1.95	$1.45	$1.80
1¼	4⅝	.60	.85	1.10	1.35	.90	1.15	1¼	5¼	1.00	1.35	1.65	2.00	1.50	1.85
1½	5	.65	.90	1.15	1.40	1.00	1.25	1½	6⅛	1.10	1.45	1.80	2.15	1.65	2.00
2	6	.75	1.00	1.30	1.55	1.15	1.40	2	6½	1.25	1.60	2.10	2.45	1.90	2.25
2½	7	.85	1.10	1.45	1.70	1.30	1.55	2½	7½	1.40	1.75	2.30	2.65	2.10	2.45
3	7½	.95	1.25	1.55	1.85	1.40	1.70	3	8¼	1.60	2.05	2.65	3.10	2.40	2.85
3½	8½	1.20	1.55	2.00	2.35	1.80	2.15	3½	9	2.00	2.55	3.30	3.85	3.00	3.55
4	9	1.35	1.80	2.20	2.65	2.00	2.45	4	10	2.25	2.95	3.70	4.40	3.35	4.05
4½	9¼	1.45	1.90	2.40	2.85	2.20	2.65	4½	10½	2.40	3.10	4.00	4.70	3.60	4.30
5	10	1.60	2.05	2.65	3.10	2.40	2.85	5	11	2.65	3.35	4.40	5.10	4.00	4.70
6	11	2.00	2.50	3.30	3.80	3.00	3.50	6	12½	3.30	4.05	5.50	6.25	5.00	5.75
7	12½	2.65	3.25	4.40	5.00	4.00	4.60	7	14	4.40	5.30	7.25	8.15	6.60	7.50
8	13½	3.10	3.80	5.10	5.80	4.60	5.30	8	15	5.10	6.15	8.40	9.45	7.65	8.70
9	15	3.85	4.65	6.35	7.15	5.75	6.55	9	16¼	6.30	7.50	10.50	11.70	9.50	10.70
10	16	4.50	5.50	7.45	8.45	6.75	7.75	10	17½	7.40	8.90	12.00	13.50	11.00	12.50
12	19	6.50	7.65	10.75	11.90	9.75	10.90	12	20½	10.75	12.50	17.50	19.25	16.00	17.75
14	21	9.00	10.35	15.00	16.35	13.50	14.85	14	23	15.00	17.00	25.00	27.00	22.50	24.50
15	22¼	11.50	13.20	19.00	20.70	17.00	18.70	15	24½	19.00	21.50	31.50	34.00	28.50	31.00
16	23½	13.50	15.30	22.00	23.80	20.00	21.80	16	25½	22.25	25.00	37.00	39.75	33.50	36.25
18	25	16.00	18.00	26.50	28.50	24.00	26.00	18	28	26.00	29.00	43.00	46.00	39.00	42.00
20	27½	19.00	21.50	31.00	33.50	28.00	30.50	20	30½	31.00	35.00	51.00	55.00	46.00	50.00
22	29½	22.00	25.00	36.00	39.00	33.00	36.00	22	33	36.00	41.00	60.00	65.00	54.00	59.00
24	32	27.00	30.50	44.00	47.50	40.00	43.50	24	36	45.00	50.00	74.00	79.00	67.00	72.00

See Following Page



Fig. 27
Foot Valve
Screwed

Cast Iron Foot Valves



Fig. 28
Foot Valve
Flanged



Fig. 49
Retention Valve
Screwed

Cast Iron Retention Valves



Fig. 50
Retention Valve
Flanged

Foot Valves

Size Pipe....Inches	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8	10	12	14	16
Screwed, Black	$1.15	$1.15	$1.30	$1.40	$1.90	$2.40	$3.30	$3.90	$ 5.60	$ 7.30	$10.50	$11.25	$14.75	$35.00	$41.00	$ 64.00	$100.00	.....	.....
Screwed, Galv.	1.75	1.75	2.00	2.10	2.85	3.60	5.00	5.75	8.50	11.00	15.75	16.75	22.00	53.00	62.00	110.00	155.00	.....	.....
Flanged, Black	.....	.....	.....	.....	.....	3.50	4.50	5.75	7.50	9.50	13.00	14.00	17.50	38.00	45.00	70.00	112.00	$150.00	$200.00
Flanged, Galv.	.....	.....	.....	.....	.....	5.50	7.00	9.00	12.00	15.00	20.00	22.00	27.00	57.00	72.00	120.00	170.00	.....	.....

Retention Valves

Size Pipe....Inches	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8	10	12	14	16
Screwed, Black	$0.70	$0.70	$0.70	$0.75	$1.00	$1.30	$1.85	$2.60	$ 3.80	$ 4.20	$ 6.10	$ 6.60	$ 9.00	$24.00	$24.00	$ 43.50	$ 87.00	.....	.....
Screwed, Galv.	1.10	1.10	1.10	1.15	1.60	2.20	3.00	4.10	5.80	6.38	9.00	9.80	16.00	45.00	45.00	75.00	135.00	.....	.....
Flanged, Black	.....	.....	.....	.....	.....	2.50	3.15	3.40	4.60	5.50	7.20	7.60	12.20	24.80	24.80	45.00	92.00	.....	.....
Flanged, Galv.	.....	.....	.....	.....	.....	3.40	4.20	4.35	6.80	8.30	10.95	11.40	18.50	49.60	49.60	78.00	144.00	.....	.....



Fig. 29
Strainer Screwed
½"—4"



Fig. 30
Strainer Flanged
½"—4"

Cast Iron Strainers



Fig. 66
Strainer Screwed
4½"—8"



Fig. 67
Strainer Flanged
4½"—8"

Size Pipe.....Inches	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	8
Screwed, Black	$ 0.30	$ 0.30	$ 0.40	$ 0.50	$ 0.75	$ 1.00	$ 1.50	$ 2.00	$ 3.00	$ 3.75	$ 4.75	$ 4.75	$ 6.50	$15.00
Screwed, Galvanized	.40	.40	.50	.75	1.00	1.50	2.00	3.00	4.50	6.00	7.00	7.00	10.00	20.00
Flanged, Black	.....	.....	.....	.....	.....	.....	2.40	2.75	3.90	4.75	6.25	6.25	9.75	20.00
Flanged, Galvanized	.....	.....	.....	.....	.....	.....	3.50	4.00	5.25	7.00	9.00	9.00	14.00	25.00

Cast Iron Floor Flanges

Fig. 31



Size Pipe..In.	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Diam.Flange:										
2½	$0.10	$0.10	$0.10	$0.15	.....	.....	.....	.....	.....	.....
3	.10	.10	.10	.15	$0.15	.....	.....	.....	.....	.....
3½	.....	.15	.15	.15	.15	$0.16	.....	.....	.....	.....
4	.....	.22	.22	.22	.16	.16	$0.22	.....	.....	.....
4½	.....	.....	.25	.25	.25	.25	.22	.....	.....	.....
5	.....	.....	.35	.30	.30	.30	.30	$0.35	.....	.....
5½	.....	.....	.....	.....	.40	.40	.40	.35	$0.40	.....
6	.....	.....	.....	.....	.42	.40	.40	.42	.42	$0.50
6½	.....	.....	.....	.....	.....	.60	.55	.50	.50	.50
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.62

Galvanized floor flanges double above list prices.



Fig. 37
Split Floor Plate



Fig. 38
Plain Floor Plate



Fig. 39
Ceiling Plate



Fig. 40
Plain Ceiling Plate

Cast Iron Floor and Ceiling Plates

Size Pipe.....Inches	½	¾	1	1¼	1½	2	2½
Floor Plates	$0.06	$0.06	$0.08	$0.11	$0.14	$0.16	$0.24
Ceiling Plates	.11	.13	.16	.18	.23	.27	.36

Size Pipe.....Inches	3	3½	4	4½	5	6
Floor Plates	$0.30	$0.35	$0.42	$0.50	$0.60	$0.75
Ceiling Plates	.50	.55	.68	.85	.95	1.25



Fig. 35
Ball Ornament
Male



Fig. 32
Square Railing
Flange



Fig. 34
45-degree Oval
Flange



Fig. 33
Oval Flange



Fig. 36
Ball Ornament
Female

Cast Iron Railing Fittings

Size Pipe.....Inches	½	¾	1	1¼	1½	2	2½
Square Rail Flanges	$0.14	$0.15	$0.15	$0.20	$0.28	$0.30	.....
Oval Flanges	.14	.18	.22	.24	.31	.44	$0.50
45 Degree Oval Flanges	.....	.50	.60	.70	.80	.90	.....
Ball Ornaments	.16	.18	.20	.25	.35	.90	1.00

Size Pipe.....Inches	3	3½	4	4½	5	6
Square Rail Flanges	.....	.....	.....	.....	.....	.....
Oval Flanges	$0.65	$0.75	$0.90	$1.40	$1.70	$2.00
45 Degree Oval Flanges	.....	.....	.....	.....	.....	.....
Ball Ornaments	1.50	.....	3.00	.....	.....	.....

Galvanized Fittings double above list prices.

Cast Iron Sprinkler Clips

Fig. 45



Size Pipe....Inches	¾	1	1¼	1½	2	2½	3	3½	4
Short	$0.15	$0.16	$0.18	$0.20	$0.25	$0.30	$0.40	$0.50	$0.65
Long	.17	.18	.20	.22	.27	.35	.45	.60	.75
Extra Long	.20	.22	.24	.26	.31	.41	.55	.70	.85



Fig. 41
Hook Plate



Fig. 43
Expansion Plate

Cast Iron Hook, Expansion and Ring Plates and Pipe Saddles



Fig. 44
Ring Plate



Fig. 51
Pipe Saddle

Number of Pipes	1	2	3	4	5	6	7	8	9	10	11	12
Hook Plates												
¾-in. Pipe, 2¼-in. C. to C.	$0.08	$0.16	$0.21	$0.24	$0.28	$0.34	$0.40	$0.45	$0.50	$0.56	$0.68	$0.72
1 -in. Pipe, 2½-in. C. to C.	.09	.18	.23	.26	.32	.38	.48	.59	.65	.70	.85	1.00
1¼-in. Pipe, 3 -in. C. to C.	.10	.21	.27	.32	.41	.52	.68	.80	.90	1.20	1.35	1.40
1½-in. Pipe, 3½-in. C. to C.	.15	.28	.43	.58	.72	.88	1.10	1.25	1.40	1.55	1.65	1.90
2 -in. Pipe, 4½-in. C. to C.	.22	.43	.65	.90	1.15	1.35	1.75	2.00	2.25	2.50	2.75	3.00
Expansion Plates												
¾-in. Pipe, 2¼-in. C. to C.	$0.12	$0.23	$0.34	$0.45	$0.55	$0.65	$0.77	$0.90	$1.05	$1.25	$1.45	$1.65
1 -in. Pipe, 2½-in. C. to C.	.15	.25	.35	.50	.60	.70	.80	.95	1.10	1.35	1.55	1.70
1¼-in. Pipe, 3 -in. C. to C.	.17	.27	.40	.60	.70	.80	.90	1.15	1.30	1.50	1.70	2.00
1½-in. Pipe, 3½-in. C. to C.	.25	.40	.60	.75	.90	1.00	1.25	1.50	1.75	2.00	2.25	2.50
2 -in. Pipe, 4½-in. C. to C.	.40	.60	.85	1.00	1.35	1.55	2.00	2.45	2.75	3.10	3.60	4.25
Ring Plates												
1 -in. Pipe, 2½-in. C. to C.	$0.16	$0.28	$0.41	$0.50	$0.62	$0.72	$0.96	$1.00	$1.20	$1.30	$1.40	$1.50
1¼-in. Pipe, 3 -in. C. to C.	.21	.35	.50	.62	.75	1.10	1.25	1.40	1.60	2.00	2.20	2.40
1½-in. Pipe, 3½-in. C. to C.	.30	.40	.70	.90	1.00	1.30	1.40	1.60	1.80	2.20	2.60	3.00
Pipe Saddles												
1 -in. Pipe, 2½-in. C. to C.	.....	.....	$0.60	$0.65	$0.70	$0.90	$1.00	$1.40	$1.60	$1.75	$2.10	$2.50
1¼-in. Pipe, 3 -in. C. to C.	.....	.....	.65	.75	.85	1.10	1.40	1.65	1.80	2.00	2.50	3.00
1½-in. Pipe, 3½-in. C. to C.	.....	.....	.80	.90	1.00	1.30	1.65	2.00	2.25	2.50	3.00	3.50



Fig. 46
Expansion Pipe Hanger

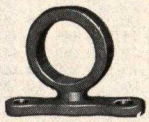


Fig. 56
Solid Ring Pipe Hanger

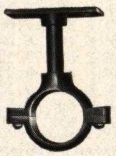


Fig. 57
Split Ring Extension Pipe Hanger



Prices on Application

Fig. 47
Column Plate
Pipe Sizes
1½"—8"



Fig. 48
Low Pressure Damper Regulator

Cast Iron Expansion Pipe Hangers

Size Pipe....In.	½	¾	1	1¼	1½	2	2½	3
Complete	$0.17	$0.17	$0.18	$0.19	$0.25	$0.29	$0.36	$0.44
Plate	.08	.08	.08	.08	.09	.09	.10	.10
Button	.06	.06	.06	.06	.07	.07	.08	.08
Ring	.08	.08	.12	.15	.20	.25	.30	.40

Size Pipe....In.	3½	4	4½	5	6	7	8
Complete	$0.55	$0.63	$0.90	$1.12	$1.35	$1.80	$2.25
Plate	.10	.10	.10	.10	.10	.10	.10
Button	.08	.08	.08	.08	.08	.08	.08
Ring	.50	.60	.80	1.00	1.25	1.70	2.15

Cast Iron Solid Ring Pipe Hangers

Size Pipe...Inches	⅜	½	¾	1	1¼	1½	2
Black, per 100	$5.00	$5.00	$5.80	$7.75	$10.00	$14.00	$22.00
Galv., per 100	6.50	6.50	7.00	9.00	12.00	16.00	25.00

Cast Iron Split Ring Extension Pipe Hangers

Size Pipe	With Nipple		Without Nipple		Split Ring Only		Flange Only	
	Black	Galv.	Black	Galv.	Black	Galv.	Black	Galv.
⅜	$0.22	$0.25	$0.17	$0.20	$0.15	$0.17	$0.13	$0.15
½	.22	.25	.17	.20	.15	.17	.13	.15
¾	.27	.30	.22	.25	.18	.20	.13	.15
1	.32	.35	.27	.30	.22	.25	.13	.15
1¼	.35	.40	.30	.35	.27	.30	.13	.15
1½	.40	.50	.35	.45	.35	.40	.13	.15
2	.50	.60	.45	.55	.40	.50	.13	.15

Cast Iron Tucker Connections



Fig. 54

Size Pipe Inches	2	2½	3	4	5	6
Black	$0.80	$1.50	$2.00	$3.25	$ 6.00	$ 8.75
Galv.	1.40	2.45	3.50	5.70	10.50	15.25

Underground Storage Tank Fittings

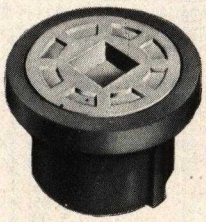


Fig. 601



Fig. 603
Details and Prices on Application



Fig. 605



Fig. 604



Fig. 64—4x5

Cast Iron Drum Traps



Fig. 65—4x8

Size Trap	Number of Openings	Size of Inlet	Price without Cover	Price with Cover
4 x 5	2	1½ inches	.....	.....
4 x 8	2	1½ inches	.....	.....



Fig. 55-1
No. 1 Vent Hub



Fig. 55-2
No. 2 Vent Hub



Fig. 55-3
No. 3 Vent Hub

Cast Iron Vent Hubs

Number	1	2	3
Price	$0.20	$0.25	$0.35

NEW YORK BRASS FOUNDRY CO. NEW YORK, N. Y.

Established 1896 General Offices—403-405 Broome Street



Extra Heavy 90° Elbows



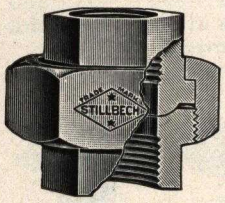
Extra Heavy 45° Elbows



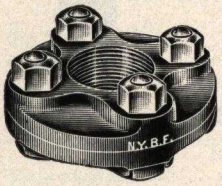
Extra Heavy Tees



Standard Unions



Extra Heavy Unions



Flange Unions

Extra Heavy Bronze Fittings

Cast Iron Pattern

For Steam Working Pressures Up to 250 Pounds

Cast Iron Pattern—Rough, for Iron Pipe
List Prices—Each

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	8	10	12
Elbows, 90°.....	.33	.45	.65	1.00	1.50	2.25	3.00	4.50	8.00	11.25	16.00	22.00	27.00	35.00	45.00	110.00	230.00	435.00
Elbows, Reducing....	....	.55	.75	1.20	1.80	2.60	3.50	5.25	9.00	13.00	19.00	25.00	30.00	40.00	50.00	124.00	255.00	480.00
Elbows, 45°.....	.45	.55	.75	1.10	1.65	2.50	3.25	4.50	8.00	11.25	16.00	22.00	27.00	35.00	45.00	110.00	230.00	435.00
Elbows, R. & L.....	.40	.55	.75	1.20	1.80	2.60	3.50	5.25	9.00	13.00	.....	.....	.....	.....	.....	.....	.....	.....
Street Elbows.....	.....	.....	1.30	2.00	3.00	4.50	6.00	9.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tees.....	.45	.60	.90	1.35	2.00	3.00	4.00	6.00	10.75	15.00	22.00	30.00	36.00	46.00	60.00	150.00	310.00	580.00
Tees, Reducing.....	....	.70	1.05	1.55	2.30	3.50	4.50	6.75	12.00	17.00	25.00	35.00	40.00	51.00	66.00	188.00	340.00	640.00
Crosses.....	.70	.90	1.30	2.00	3.00	4.50	6.00	9.00	16.00	22.50	28.00	37.00	45.00	60.00	75.00	200.00	385.00	725.00
Crosses, Reducing....	....	1.10	1.50	2.40	3.60	5.25	7.00	10.50	18.00	26.00	32.00	42.00	50.00	66.00	82.00	220.00	425.00	795.00
Couplings.....	.40	.50	.70	1.10	1.65	2.25	3.00	4.50	7.00	10.00	13.00	17.00	21.00	27.00	35.00	66.00	175.00	335.00
Return Bends, Close.	.....	.....	1.65	2.50	3.50	5.00	7.00	10.00	16.00	22.00	30.00	40.00	.....	.....	.....	.....	.....	.....
Return Bends, Open.	.....	.....	1.80	2.75	4.00	5.50	8.00	11.00	18.00	25.00	35.00	45.00	.....	.....	.....	.....	.....	.....
Wyes.....	.90	1.10	1.50	2.50	3.50	5.50	7.25	11.00	19.00	27.00	33.00	45.00	55.00	70.00	90.00	225.00	460.00	870.00
Caps.....	.40	.50	.70	1.10	1.65	2.25	3.00	4.50	7.00	10.00	13.00	17.00	21.00	27.00	35.00	.....	.....	.....

Cast Iron Pattern—Rough, Tinned, for Iron Pipe
List Prices—Each

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6
Elbows, 90°.....	$0.48	$0.65	$0.90	$1.30	$1.95	$2.75	$ 3.65	$ 5.40	$ 9.50	$13.25	$18.75	$25.50	$31.50	$41.00	$ 52.50
Elbows, Reducing.....	.....	.75	1.00	1.50	2.25	3.10	4.15	6.15	10.50	15.00	21.75	28.50	34.50	46.00	57.50
Elbows, 45°.....	.60	.75	1.00	1.40	2.10	3.00	3.90	5.40	9.50	13.25	18.75	25.50	31.50	41.00	52.50
Elbows, R. & L.....	.55	.75	1.00	1.50	2.25	3.10	4.15	6.15	10.50	15.00	.....	.....	.....	.....	.....
Street Elbows.....	.....	.....	1.55	2.30	3.45	5.00	6.65	9.90	.....	.....	.....	.....	.....	.....	.....
Tees.....	.65	.85	1.25	1.75	2.60	3.70	4.85	7.25	12.75	17.75	26.00	34.50	42.00	54.00	70.00
Tees, Reducing.....	.....	.95	1.40	1.95	2.90	4.20	5.35	8.00	14.00	19.75	29.00	39.50	46.00	59.00	76.00
Crosses.....	.95	1.25	1.75	2.50	3.75	5.35	7.00	10.50	18.25	25.75	33.00	43.00	52.00	70.00	87.50
Crosses, Reducing.....	.....	1.45	1.95	2.90	4.35	6.10	8.00	12.00	20.25	29.25	37.00	48.00	57.00	76.00	94.50
Couplings.....	.50	.65	.90	1.35	2.00	2.65	3.50	5.25	8.00	11.50	15.00	19.50	24.00	31.00	40.00
Return Bends, Close.	.....	.....	2.15	3.10	4.40	6.00	8.25	11.75	18.75	26.00	36.00	47.00	.....	.....	.....
Return Bends, Open.	.....	.....	2.30	3.35	4.90	6.50	9.25	12.75	20.75	29.00	41.00	52.00	.....	.....	.....
Wyes.....	1.20	1.50	2.00	3.10	4.35	6.50	8.50	12.75	21.75	31.00	38.00	52.00	64.00	82.00	105.00
Caps.....	.50	.65	.90	1.35	2.00	2.65	3.50	5.25	8.00	11.50	15.00	19.50	24.00	31.00	40.00

Cast Iron Pattern—Polished, for Iron Pipe
List Prices—Each

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6
Elbows, 90°.....	$0.73	$0.95	$1.25	$1.75	$2.50	$3.50	$ 4.50	$ 6.25	$10.50	$14.75	$23.50	$31.00	$38.00	$48.00	$ 60.00
Elbows, Reducing.....	.....	1.15	1.50	2.10	3.00	4.10	5.35	7.50	12.00	17.25	28.00	36.00	43.75	56.00	70.00
Elbows, 45°.....	.95	1.15	1.50	2.00	2.85	4.00	5.10	6.75	11.00	15.50	25.00	33.00	40.75	51.00	65.00
Elbows, R. & L.....	.90	1.15	1.50	2.10	3.00	4.10	5.35	7.50	12.00	17.25	.....	.....	.....	.....	.....
Street Elbows.....	.....	.....	1.80	2.75	4.00	5.75	7.50	10.75	.....	.....	.....	.....	.....	.....	.....
Tees.....	1.00	1.25	1.70	2.35	3.35	4.65	6.00	8.35	14.00	19.75	32.00	42.00	51.00	64.00	80.00
Tees, Reducing.....	.....	1.50	2.05	2.80	4.00	5.50	7.00	9.75	16.00	23.00	37.00	50.00	58.00	70.00	90.00
Crosses.....	1.50	1.90	2.50	3.50	5.00	7.00	9.00	12.50	21.00	29.50	43.00	55.00	67.00	85.00	105.00
Crosses, Reducing.....	.....	2.35	3.00	4.25	6.00	8.25	10.75	15.00	24.00	35.00	50.00	64.00	75.00	95.00	120.00
Couplings.....	.75	.90	1.15	1.70	2.40	3.20	4.15	5.85	9.00	13.00	18.50	24.00	29.00	37.00	47.00
Return Bends, Close.	.....	.....	2.85	4.00	5.50	7.50	10.00	13.50	21.00	29.00	45.00	58.00	.....	.....	.....
Return Bends, Open.	.....	.....	3.00	4.25	6.00	8.00	11.00	14.50	23.00	32.00	50.00	63.00	.....	.....	.....
Wyes.....	1.70	2.10	2.70	4.00	5.50	8.00	10.25	14.50	24.00	34.00	48.00	63.00	77.00	96.00	120.00
Caps.....	.75	.90	1.15	1.70	2.40	3.20	4.15	5.85	9.00	13.00	18.50	24.00	29.00	37.00	47.00

Right and left and reducing couplings furnished at an advance of 25% over above prices.
Right and left return bends furnished at an advance of 25% over above prices.
Reducing sizes of elbows, tees and crosses not shown on reducing stock list furnished at an advance of 25% over reducing list prices.
All extra heavy fittings furnished in acid resisting metal if desired.

Standard Bronze Unions

Ground Joints
For Steam Working Pressures up to 125 Pounds
List Prices—Each

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4
Rough.....	$ 0.40	$ 0.50	$ 0.65	$ 0.85	$ 1.15	$ 1.60	$ 2.25	$ 2.70	$ 4.00	$ 7.50	$11.50	.....	.....
Semi-Finished.....	.45	.55	.75	.95	1.30	1.75	2.50	3.00	4.50	8.25	12.75	$22.50	$30.00
Polished.....	.50	.60	.85	1.05	1.40	1.90	2.75	3.25	5.00	9.00	14.00	25.00	33.00
Nickel-plated.....	.60	.72	1.02	1.25	1.68	2.28	3.30	3.90	6.00	10.80	16.80	30.00	39.50
Rough Tinned.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Polished Tinned.....	.65	.75	1.05	1.30	1.70	2.35	3.30	3.85	5.90	10.20	16.25	28.00	36.75

Stillbech Bronze Unions

Extra Heavy
For Steam Working Pressures up to 250 Pounds

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4
Price, Rough.....Each	$ 0.85	$ 1.10	$ 1.40	$ 1.60	$ 1.85	$ 3.00	$ 4.00	$ 5.25	$ 7.50	$10.00	$15.00	$24.00	$35.00
Price, Polished.....Each	1.10	1.35	1.70	1.95	2.25	3.50	4.60	5.90	8.40	11.50	18.00	27.50	40.00

Standard Bronze Flange Unions

Iron Bolts—Rough

Size.....Inches	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6
Price, Rough.....Each	$ 4.00	$ 4.50	$ 5.00	$ 5.50	$ 7.00	$ 9.00	$11.50	$15.00	$18.00	$22.00	$27.00	$35.00	$45.00

Extra Heavy Bronze Flange Unions

For Steam Working Pressures up to 250 Pounds

Size.....Inches	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6
Price, Rough.....Each	$ 7.50	$ 8.50	$11.00	$13.00	$16.00	$18.00	$24.00	$27.00	$30.00	$37.00	$48.00	$60.00

Furnished in acid resisting metal if desired.



90° Elbow



45° Elbow



90° Street Elbow



Tee



Cross



Wye



Coupling



Cap

Standard Bronze Fittings

Flat Band—Iron Pipe Size

For Steam Working Pressures Up to 125 Pounds



Return Bend

List Prices—Each

Rough—For Iron Pipe

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10
Elbows, 90°	.12	.15	.20	.28	.40	.63	.90	1.20	2.00	3.50	6.00	8.00	10.00	25.00	40.00	80.00	185.00
Elbows, Reducing	....	.19	.25	.35	.50	.80	1.10	1.50	2.50	4.25	7.50	10.00	12.50	30.00	50.00	100.00	215.00
Elbows, 45°	.16	.20	.25	.31	.40	.63	.90	1.20	2.00	3.50	6.00	8.00	10.00	25.00	40.00	80.00	185.00
Elbows, Street, 90°	.25	.27	.33	.48	.63	.85	1.50	2.00	3.25	6.00	10.00	....	....	....	....	....	....
Elbows, Street, 45°	....	....	.42	.60	.80	1.10	1.95	2.50	4.10	....	....	....	....	....	....	....	....
Elbows, Side Outlet	....	.45	.60	.85	1.20	1.90	2.75	3.60	6.00	10.50	18.00	....	....	....	....	....	....
Elbows, Drop, Female	....	....	.35	.45	.65	1.05	1.50	2.00	3.40	....	....	....	....	....	....	....	....
Tees	.17	.21	.28	.40	.55	.85	1.25	1.70	2.80	5.00	8.50	11.00	14.00	35.00	52.00	110.00	250.00
Tees, Reducing	....	.25	.35	.50	.70	1.05	1.55	2.10	3.50	6.25	10.50	14.00	17.50	44.00	65.00	140.00	300.00
Tees, Drop, Single Ear	....	....	.43	.57	.80	1.25	1.85	2.50	4.20	....	....	....	....	....	....	....	....
Tees, Service (Street)	....	....	.44	.63	.90	1.35	1.95	2.65	4.40	....	....	....	....	....	....	....	....
Tees, Side Outlet	....	....	....	1.20	1.65	2.50	3.75	5.00	8.50	....	....	....	....	....	....	....	....
Crosses	.25	.30	.40	.55	.80	1.25	1.80	2.40	4.00	7.00	12.00	16.00	20.00	50.00	80.00	160.00	310.00
Crosses, Reducing	....	.38	.50	.70	1.00	1.55	2.25	3.00	5.00	8.75	15.00	20.00	25.00	63.00	100.00	200.00	372.00
Couplings	.10	.13	.17	.25	.37	.55	.80	1.00	1.60	2.50	3.50	5.25	7.00	15.00	23.00	48.00	100.00
Couplings, R. & L.	.13	.17	.22	.30	.45	.70	1.00	1.30	2.00	3.10	4.50	....	....	....	....	....	....
Couplings, Reducing	....	.15	.20	.28	.40	.60	.90	1.10	1.75	2.75	4.00	6.00	8.00	19.00	29.00	60.00	125.00
Bushings, Regular	....	.10	.12	.15	.22	.35	.50	.70	1.00	1.50	2.50	3.75	5.00	12.00	18.00	35.00	100.00
Bushings, Faced	....	.12	.15	.19	.27	.44	.62	.87	1.25	1.85	3.10	4.75	6.25	15.00	22.50	43.75	125.00
Plugs, Regular	.08	.10	.12	.15	.20	.30	.45	.60	.95	1.50	2.25	3.75	5.00	8.00	12.00	30.00	50.00
Plugs, Solid	....	....	.18	.22	.30	.45	.80	1.20	1.90	3.00	4.50	7.50	10.00	15.00	23.00	48.00	140.00
Plugs, Countersunk	....	....	....	.22	.30	.45	.65	.90	1.40	2.25	3.40	5.60	7.50	....	....	....	....
Caps	.10	.13	.16	.20	.30	.42	.60	.80	1.25	2.50	3.50	5.50	7.00	15.00	23.00	48.00	140.00
Locknuts	.10	.10	.12	.15	.20	.28	.40	.55	.80	1.75	2.75	4.00	5.00	8.00	12.00	30.00	85.00
Return Bends, Close	.30	.40	.55	.70	1.00	1.25	1.80	2.50	4.25	7.00	10.00	....	....	....	....	....	....
Return Bends, Open	.40	.50	.60	.80	1.10	1.40	2.15	3.00	4.75	8.25	11.00	....	....	....	....	....	....
Wyes	....	....	.60	.75	1.10	1.65	2.50	3.30	5.50	9.50	16.00	21.00	26.00	63.00	100.00	200.00	410.00

Polished—For Iron Pipe

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4
Elbows, 90°	.30	.35	.45	.56	.75	1.10	1.55	2.00	3.00	5.50	9.00	14.00	17.50
Elbows, Reducing	....	.44	.55	.70	.95	1.40	1.90	2.50	3.75	6.75	11.25	17.50	22.00
Elbows, 45°	.38	.45	.55	.66	.85	1.23	1.70	2.20	3.25	6.00	9.75	15.50	19.50
Elbows, Street, 90°	.47	.52	.63	.83	1.08	1.45	2.30	3.00	4.50	8.50	13.75	....	....
Elbows, Street, 45°	....	....	.81	1.15	1.55	2.15	3.00	3.75	6.10	....	....	....	....
Elbows, Side Outlet	1.05	1.35	1.70	2.25	3.30	4.70	6.00	9.00	16.50	27.00	....	....	....
Elbows, Drop, Female	....	....	.85	1.05	1.40	2.00	2.80	3.60	5.40	....	....	....	....
Tees	.42	.49	.63	.80	1.05	1.50	2.15	2.80	4.20	7.75	12.75	19.50	24.50
Tees, Reducing	....	.60	.77	1.00	1.30	1.85	2.65	3.50	5.25	9.75	15.80	24.50	30.50
Tees, Drop, Single Ear	....	....	1.13	1.37	1.80	2.55	3.65	4.70	7.00	....	....	....	....
Tees, Service (Street)	....	....	.95	1.30	1.80	2.45	3.60	4.50	6.60	....	....	....	....
Tees, Side Outlet	....	....	....	2.05	2.70	3.90	5.70	7.40	11.50	....	....	....	....
Crosses	.60	.70	.90	1.10	1.50	2.20	3.10	4.00	6.00	11.00	18.00	28.00	35.00
Crosses, Reducing	....	.88	1.10	1.40	1.85	2.75	3.85	5.00	7.50	13.75	22.50	35.00	44.00
Couplings	.24	.28	.36	.46	.63	.90	1.30	1.60	2.35	4.00	5.75	9.75	12.50
Couplings, R. & L.	.31	.37	.47	.58	.80	1.15	1.65	2.10	3.00	5.10	7.50	....	....
Couplings, Reducing	....	.35	.45	.56	.75	1.05	1.55	1.90	2.75	4.75	7.00	12.00	15.50
Bushings, Regular	....	.22	.27	.35	.47	.70	1.00	1.40	2.00	3.00	4.50	6.25	8.00
Bushings, Faced	....	....	....	....	....	....	....	....	....	....	....	....	....
Plugs, Regular	.23	.30	.37	.43	.55	.75	1.00	1.30	1.95	3.00	4.25	6.25	8.00
Plugs, Solid	....	....	.43	.50	.65	.90	1.35	1.90	2.90	4.50	6.50	10.00	13.00
Plugs, Countersunk	....	....	....	.42	.55	.80	1.15	1.55	2.25	....	....	....	....
Caps	.20	.25	.31	.40	.55	.77	1.10	1.50	2.25	4.00	5.50	8.00	10.00
Locknuts	.24	.25	.32	.40	.50	.65	.85	1.10	1.60	3.25	4.75	6.50	8.00
Return Bends, Close	.85	1.00	1.30	1.55	2.05	2.65	3.75	4.90	7.25	13.00	19.00	....	....
Return Bends, Open	.95	1.10	1.35	1.65	2.15	2.80	4.10	5.40	7.75	14.25	20.00	....	....
Wyes	....	....	1.35	1.60	2.15	3.05	4.45	5.70	8.50	15.50	25.00	33.00	41.00

List Prices—Each

Polished and Nickel Plated—For Iron Pipe

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4
Elbows, 90°	.36	.42	.53	.65	.87	1.25	1.75	2.25	3.35	6.15	10.00	16.00	20.00
Elbows, Reducing	....	.52	.65	.82	1.10	1.60	2.15	2.85	4.15	7.60	12.50	20.00	25.00
Elbows, 45°	.45	.53	.65	.78	1.00	1.43	1.95	2.55	3.65	6.85	11.00	18.00	22.50
Elbows, Street, 90°	.54	.60	73	.95	1.23	1.65	2.55	3.35	4.90	9.35	15.00	....	....
Elbows, Street, 45°	....	....	1.00	1.45	1.95	2.70	3.75	4.70	7.60	....	....	....	....
Elbows, Side Outlet	....	1.25	1.60	2.00	2.60	3.75	5.35	6.80	10.00	18.50	30.00	....	....
Elbows, Drop, Female	....	....	1.00	1.25	1.65	2.30	3.20	4.10	6.00	....	....	....	....
Tees	.50	.58	.75	.93	1.22	1.70	2.45	3.15	4.65	8.65	14.00	22.30	28.00
Tees, Reducing	....	.72	.90	1.15	1.50	2.10	3.00	3.95	5.85	10.90	17.50	28.00	35.00
Tees, Drop, Single Ear	....	....	1.33	1.62	2.15	2.95	4.25	5.45	7.90	....	....	....	....
Tees, Service (Street)	....	....	1.20	1.65	2.25	3.05	4.50	5.65	8.25	....	....	....	....
Tees, Side Outlet	....	....	....	2.35	3.05	4.35	6.35	8.20	12.50	....	....	....	....
Crosses	.72	.84	1.05	1.30	1.75	2.50	3.50	4.50	6.70	12.30	20.00	32.00	40.00
Crosses, Reducing	....	1.05	1.30	1.65	2.15	3.15	4.35	5.70	8.30	15.40	25.00	40.00	50.00
Couplings	.29	.33	.42	.53	.72	1.00	1.45	1.80	2.60	4.50	6.50	11.25	14.25
Couplings, R. & L.	.37	.44	.55	.67	.92	1.30	1.85	2.35	3.35	5.75	8.50	....	....
Couplings, Reducing	....	.42	.53	.65	.87	1.20	1.75	2.15	3.10	5.40	8.00	14.00	18.00
Bushings, Regular	....	.26	.32	.42	.55	.82	1.15	1.65	2.35	3.50	5.15	7.10	9.00
Plugs, Regular	.28	.37	.45	.52	.67	.90	1.20	1.55	2.30	3.50	4.90	7.10	9.00
Plugs, Solid	....	....	.51	.59	.77	1.05	1.55	2.15	3.25	5.00	7.15	10.85	14.00
Plugs, Countersunk	....	....	....	.49	.63	.92	1.30	1.75	2.55	....	....	....	....
Caps	.23	.29	.36	.47	.63	.89	1.25	1.75	2.60	4.50	6.15	8.85	11.00
Locknuts	.29	.30	.39	.48	.60	.77	1.00	1.30	1.85	3.75	5.40	7.35	9.00
Return Bends, Close	1.05	1.20	1.55	1.85	2.40	3.10	4.40	5.70	8.25	15.00	22.00	....	....
Return Bends, Open	1.15	1.30	1.60	1.95	2.50	3.25	4.75	6.20	8.75	16.25	23.00	....	....
Wyes	....	....	1.60	1.90	2.50	3.50	5.10	6.50	9.50	17.50	28.00	37.00	46.00

Rough Tinned—For Iron Pipe

⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4
.22	.25	.33	.43	.60	.93	1.25	1.60	2.60	4.30	7.50	10.00	12.50
....	.29	.38	.50	.70	1.10	1.45	1.90	3.10	5.00	9.00	12.00	15.00
.26	.30	.38	.46	.60	.93	1.25	1.60	2.60	4.30	7.50	10.00	12.50
.35	.37	.46	.63	.83	1.15	1.85	2.40	3.85	6.80	11.50	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....
....	.57	.75	1.05	1.45	2.25	3.20	4.10	6.75	11.50	19.85	....	....
....	....	.50	.65	.90	1.40	1.95	2.50	4.15	....	....	....	....
.29	.33	.43	.60	.80	1.20	1.70	2.20	3.55	6.00	10.35	13.50	17.00
....	.37	.50	.70	.95	1.40	2.00	2.60	4.25	7.25	12.35	16.50	20.50
....	....	.63	.82	1.10	1.70	2.40	3.10	5.10	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....
.40	.45	.60	.80	1.10	1.70	2.35	3.00	4.90	8.20	14.25	19.00	23.75
....	.53	.70	.95	1.20	2.00	2.80	3.60	5.90	10.00	17.25	23.00	28.75
.20	.23	.30	.40	.57	.85	1.15	1.40	2.20	3.30	5.00	7.25	9.50
.23	.27	.35	.45	.65	1.00	1.35	1.70	2.60	3.90	6.00	....	....
....	.25	.33	.43	.60	.90	1.25	1.50	2.35	3.55	5.50	8.00	10.50
....	.15	.18	.23	.32	.50	.68	.90	1.30	1.90	3.25	4.75	6.25
.13	.15	.18	.23	.30	.45	.63	.80	1.25	1.90	3.00	4.75	6.25
....	....	.24	.30	.40	.60	1.00	1.40	2.20	3.40	5.25	8.50	11.25
....	....	....	.30	.40	.60	.85	1.10	1.70	....	....	....	....
.15	.18	.22	.28	.40	.57	.80	1.00	1.55	2.90	4.25	6.50	8.25
.15	.15	.18	.23	.30	.43	.60	.75	1.10	2.15	3.50	5.00	6.25
.50	.60	.80	1.00	1.40	1.85	2.50	3.30	5.45	8.60	13.00	....	....
.60	.70	.85	1.10	1.50	2.00	2.85	3.80	5.95	9.85	14.00	....	....
....	....	.85	1.05	1.50	2.25	3.20	4.10	6.70	11.00	19.00	25.00	31.00

Right and left elbows and right and left return bends furnished at an advance of 25% over above lists.

Bushings and couplings reducing more than 2 sizes furnished at an advance of 25% over above lists.

Reducing sizes of elbows, tees, and crosses not shown on reducing stock list will be furnished at an advance of 25% over reducing lists.

See Following Page

Standard Bronze Fittings



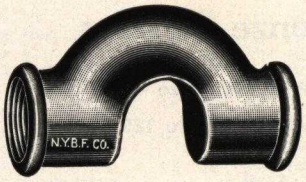
Extension Pieces

List Prices—Each

Size.....Inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Rough	$0.25	$0.30	$0.40	$0.55	$0.80	$1.20	$1.80	$2.40	$3.25
Polished	.40	.50	.65	.85	1.15	1.65	2.45	3.05	3.90
Nickel Plated	.45	.57	.73	.95	1.27	1.80	2.65	3.15	4.00



Wash Tray Tee



Crossover

Wash Tray Tees (New Lists)

Fleck Fittings
List Prices—Each

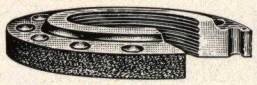
Size.....Inches	1/2	3/4	3/4x1/2
Tees, Rough, Short	$1.10	$1.50	$1.50
Tees, Rough, Long	1.40	2.00	2.00

Crossovers

List Prices—Each

Size.....Inches	3/8	1/2	3/4
Rough	$1.00	$1.20	$1.50
Polished	2.00	2.40	3.00
Nickel Plated	2.30	2.75	3.45

Standard and Extra Heavy Bronze Companion Flanges



Standard Brass Companion Flanges—Rough

Size Inches	Price Faced Each	Price Faced and Drilled Each	Dimensions of Flanges: Size Inches	Diameter of Flanges Inches	Thickness of Flanges Inches	No. of Bolts	Size of Bolts Inches	Bolt Circle Inches
1 x 4	$ 5.75	$ 6.00	1	4	3/8	4	7/16	3
1 1/4 x 4 1/2	6.75	7.00	1 1/4	4 1/2	13/32	4	7/16	3 3/8
1 1/2 x 5	8.75	9.00	1 1/2	5	7/16	4	1/2	3 7/8
2 x 6	10.75	11.00	2	6	1/2	4	5/8	4 3/4
2 1/2 x 7	12.50	13.00	2 1/2	7	9/16	4	5/8	5 1/2
3 x 7 1/2	15.50	16.00	3	7 1/2	5/8	4	5/8	6
3 1/2 x 8 1/2	19.25	20.00	3 1/2	8 1/2	11/16	8	5/8	7
4 x 9	24.25	25.00	4	9	11/16	8	5/8	7 1/2
4 1/2 x 9 1/4	26.75	27.50	4 1/2	9 1/4	23/32	8	3/4	7 3/4
5 x10	29.00	30.00	5	10	3/4	8	3/4	8 1/2
6 x11	36.50	37.50	6	11	13/16	8	3/4	9 1/2
7 x12 1/2	.....	.....	7	12 1/2	7/8	8	3/4	10 3/4
8 x13 1/2	54.00	55.00	8	13 1/2	15/16	8	3/4	11 3/4
9 x15	.....	.....	9	15	15/16	12	3/4	13 1/4
10 x16	85.00	86.00	10	16	1	12	7/8	14 1/4
12 x19	103.50	105.00	12	19	1 1/16	12	7/8	17

Extra Heavy Brass Companion Flanges—Rough

1 x 4 1/2	$ 5.75	$ 6.00	1	4 1/2	1/2	4	1/2	3 1/4
1 1/4 x 5	6.75	7.00	1 1/4	5	17/32	4	1/2	3 3/4
1 1/2 x 6	8.75	9.00	1 1/2	6	9/16	4	5/8	4 1/2
2 x 6 1/2	10.75	11.00	2	6 1/2	5/8	4	5/8	5
2 1/2 x 7 1/2	12.50	13.00	2 1/2	7 1/2	11/16	4	3/4	5 7/8
3 x 8 1/4	15.50	16.00	3	8 1/4	3/4	8	3/4	6 5/8
3 1/2 x 9	19.25	20.00	3 1/2	9	13/16	8	3/4	7 1/4
4 x10	24.25	25.00	4	10	7/8	8	3/4	7 7/8
4 1/2 x10 1/2	26.75	27.50	4 1/2	10 1/2	7/8	8	3/4	8 1/2
5 x11	29.00	30.00	5	11	15/16	8	3/4	9 1/4
6 x12 1/2	36.50	37.50	6	12 1/2	1	12	3/4	10 5/8
7 x14	.....	.....	7	14	1 1/16	12	7/8	11 7/8
8 x15	54.00	55.00	8	15	1 1/8	12	7/8	13
9 x16 1/4	.....	.....	9	16 1/4	1 1/8	12	1	14
10 x17 1/2	85.00	86.00	10	17 1/2	13/16	16	1	15 1/4
12 x20 1/2	103.00	105.00	12	20 1/2	1 1/4	16	1 1/8	17 3/4

For companion flanges, also blank companion flanges, dimensions of which are not listed above prices quoted on application.
In ordering specify whether required faced only or faced and drilled.
Furnished in acid resisting metal, brazing metal and copper if desired.
Reducing flanges, price on application.



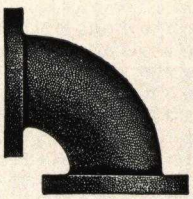
Brass Nipples

Iron Pipe Sizes

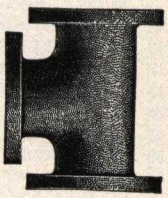
Size	Lgth. Close	Close	Length Nipples (longer than close), Inches: 1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2	6
1/8	3/4	$0.11	$0.13	$0.15	$0.17	$0.19	$0.21	$0.23	$0.25	$0.27	$0.29	$0.31
1/4	7/8	.13	.16	.19	.22	.25	.28	.31	.34	.37	.40	.43
3/8	1	.15	.19	.23	.27	.31	.35	.39	.43	.47	.51	.55
1/2	1 1/8	.23	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70
3/4	1 3/8	.28	.....	.35	.42	.49	.56	.63	.70	.77	.84	.91
1	1 1/2	.37	.....	.44	.53	.62	.71	.80	.89	.98	1.07	1.16
1 1/4	1 5/8	.60	.....	.....	.75	.88	1.01	1.14	1.27	1.40	1.53	1.66
1 1/2	1 3/4	.70	.....	.....	.90	1.05	1.20	1.35	1.50	1.65	1.80	1.95
2	2	1.00	.....	.....	1.20	1.40	1.60	1.80	2.00	2.20	2.40	2.60
2 1/2	2 1/2	1.70	.....	.....	.....	2.00	2.30	2.60	2.90	3.20	3.50	3.80
3	2 1/2	2.50	.....	.....	.....	2.90	3.30	3.70	4.10	4.50	4.90	5.30
3 1/2	2 3/4	4.00	.....	.....	.....	.....	.....	5.40	6.00	6.60	7.20	7.80
4	3	4.75	.....	.....	.....	.....	.....	6.15	6.85	7.55	8.25	8.95
4 1/2	3	5.50	.....	.....	.....	.....	.....	7.20	8.05	8.90	9.75	10.60
5	3	8.50	.....	.....	.....	.....	.....	.....	10.60	11.65	12.70	13.75
6	3 1/8	11.50	.....	.....	.....	.....	.....	.....	14.10	15.40	16.70	18.00

Polished brass nipples, longer than close, 25% extra.
Polished and nickel plated, longer than close, 50% extra.
Right and left brass nipples, 50% extra.
Extra heavy brass nipples, double above lists.
Brass nipples longer than 6 inches figured pound price of brass pipe plus cutting and threading.

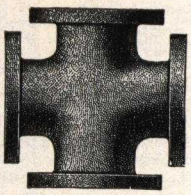
Standard and Extra Heavy Bronze Flanged Fittings



90° Elbow



Tee



Cross

Standard—125-Pound Working Pressure
and
Extra Heavy—250-Pound Working Pressure

List Prices—Each

Size.....Inches	1	1 1/4	1 1/2	2	2 1/2
90° Elbow, Faced only	$13.00	$15.00	$20.00	$25.00	$33.75
90° Elbow, Faced and Drilled	14.00	16.00	21.00	26.00	35.00
45° Elbow, Faced only	14.00	16.00	22.00	27.50	37.25
45° Elbow, Faced and Drilled	15.00	17.00	23.00	28.50	38.50
Tee, Faced only	19.50	22.50	30.00	37.50	50.75
Tee, Faced and Drilled	21.00	24.00	31.50	39.00	52.50
Cross, Faced only	26.00	30.00	40.00	50.00	67.50
Cross, Faced and Drilled	28.00	32.00	42.00	52.00	70.00

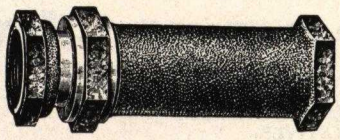
Size.....Inches	3	3 1/2	4	4 1/2	5
90° Elbow, Faced only	$43.75	$58.75	$68.00	$78.00	$93.00
90° Elbow, Faced and Drilled	45.00	60.00	70.00	80.00	95.00
45° Elbow, Faced only	47.75	63.75	73.00	83.00	98.00
45° Elbow, Faced and Drilled	49.00	65.00	75.00	85.00	100.00
Tee, Faced only	65.75	88.25	102.00	117.00	137.00
Tee, Faced and Drilled	67.50	90.00	105.00	120.00	140.00
Cross, Faced only	87.50	117.50	136.00	156.00	186.00
Cross, Faced and Drilled	90.00	120.00	140.00	160.00	190.00

Size.....Inches	6	8	10	12
90° Elbows, Faced only	$123.00	$210.00	$285.00	$375.00
90° Elbows, Faced and Drilled	125.00	214.00	289.00	379.00
45° Elbows, Faced only	133.00	225.00	300.00	405.00
45° Elbows, Faced and Drilled	135.00	229.00	304.00	409.00
Tees, Faced only	187.00	315.00	420.00	570.00
Tees, Faced and Drilled	190.00	321.00	426.00	576.00
Crosses, Faced only	246.00	420.00	570.00	750.00
Crosses, Faced and Drilled	250.00	428.00	578.00	758.00

Reducing flanged fittings made to order, prices on application.
Unless otherwise specified, we always furnish our extra heavy brass flanged fittings and companion flanges with plain face. We can furnish 1/32 raised face without extra charge.
Prices for sizes not given furnished upon request.
Furnished in acid resisting metal if desired.

Bronze Standard Expansion Joints

For Steam Working Pressure Up to 125 Pounds



Screwed Standard Traverse

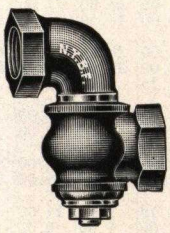
Size.....Inches	½	¾	1	1¼	1½	2	2½	3
Length of Traverse. Inches	2	2¼	2¼	2¼	2¼	2½	2½	2¾
Each.....	$1.50	$2.20	$2.75	$4.00	$5.00	$8.00	$17.50	$24.00

Screwed Special Traverse

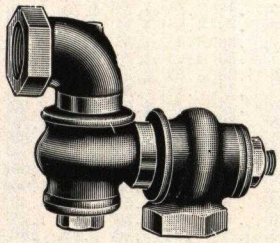
Traverse Inches	Size Inches	¾	1	1¼	1½	2	2½
4	Price, Each	$ 4.00	$ 4.90	$ 6.30	$ 7.30	$ 9.10	.....
6	Price, Each	8.25	9.00	10.00	11.50	13.50	$24.00
8	Price, Each	9.00	10.00	11.25	13.00	15.50	27.00
10	Price, Each	9.75	11.00	12.50	14.50	17.50	30.00
12	Price, Each	10.50	12.00	13.75	16.00	19.50	33.00

The Expansion will average about one inch in 50 feet of pipe. Expansion Joints longer traverse, price on application.

Bronze Steam Swing Joints



Single Swing



Universal Swing

List Prices—Each

For Steam Working Pressure Up to 125 Pounds

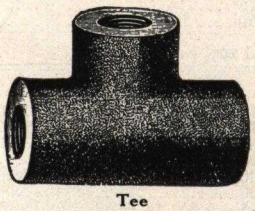
Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½
Single Swing.....	$1.00	$1.25	$1.75	$2.40	$3.50	$4.50	$ 6.25	$ 9.00	$22.00
Universal Swing...	2.00	2.50	3.50	4.80	7.00	9.00	12.50	18.00	44.00

Furnished in acid-resisting metal, if desired.

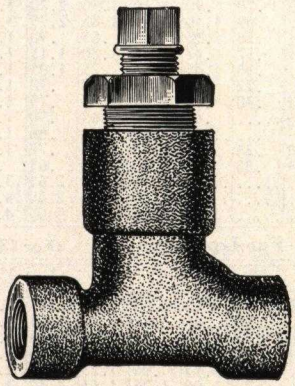
Bronze Hydraulic Fittings



Elbow



Tee



Valve

List Prices—Each

Size....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Elbows.....	$0.60	$0.85	$1.40	$1.90	$2.40	$3.80	$5.30	$9.00	.....	.....
Tees.....	.90	1.25	1.85	2.75	3.65	5.85	7.80	15.00	.....	.....
Crosses.....	1.22	1.66	2.48	3.70	4.90	7.76	10.38	20.00	.....	.....
Nipples.....	.65	.90	1.08	1.42	1.90	2.50	3.30	4.80	.....	.....
Couplings....	.60	.85	1.00	1.42	1.86	2.72	4.00	7.20	.....	.....
Unions.....	1.60	1.95	2.20	2.70	3.30	4.80	6.40	10.25	$11.25	$17.00
Flange Unions	.....	.....	4.50	6.15	7.90	9.60	11.40	13.55	28.00	40.00
Plugs.....	.46	.50	.55	.60	.70	.90	1.10	1.65	.....	.....
Bushings.....				Prices on application						
Valves, Stop and Check.	5.00	5.25	5.65	7.40	11.00	18.00	25.00	60.00	.....	.....

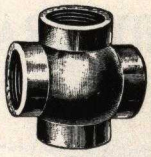
For Reducing Hydraulic Fittings, prices on application.
In ordering give working pressure.



Elbow



Tee



Cross



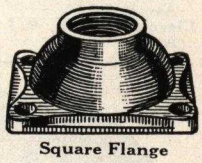
Ornament



Round Flange

Finished Brass Railing Fittings

Iron Pipe Thread



Square Flange

List Prices—Each

Size.....Inches	½	¾	1	1¼	1½	2
Elbows.....	$0.40	$0.60	$0.80	$1.20	$1.60	$2.50
Elbows, Side Outlet.....	.75	1.00	1.10	1.70	2.00	3.00
Elbows, 45 degrees.....	.....	.....	1.50	1.75	2.15	3.10
Tees.....	.60	.85	1.10	1.70	2.00	3.00
Tees, Side Outlet.....	1.05	1.25	1.50	2.00	2.40	3.50
Tees, 45 degrees.....	.....	.....	1.55	2.05	2.50	3.60
Crosses.....	1.05	1.25	1.50	2.00	2.40	3.50
Crosses, 45 degrees.....	.....	.....	1.60	2.20	2.60	3.65
Crosses, Side Outlet.....	1.20	1.40	1.70	2.25	3.00	4.00
Acorns (Ornaments).....	.75	.90	1.00	1.35	1.75	2.50

Flanges

Size.....Inches	½	¾	1	1¼	1¼	1½	2	2
Round.....	$1.25	$1.50	$2.00	$2.15	$2.35	$3.00	$3.30	$3.60
Diameter.....	3	3½	4	4	5	5	5	6
Square.....	$0.90	$1.10	$1.25	$1.65	.....	$2.10	$3.00	.....

When ordering railing fittings, be careful to state whether right or left threads are wanted. When required with right and left threads, fully describe which are wanted right, and which left.

For right and left or left hand threads, add 25% to list.



90° Bend Short

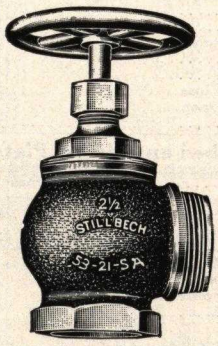
Bronze Recessed Drainage Fittings

Cast Iron Pattern

Prices on application.
Fig. 57—90° Bend Short.
Fig. 58—60° Bend.
Fig. 59—Double TY Reducing
Fig. 60—Tee Y Reducing.



Tee Y Reducing



Stillbech Bronze Metal Angle Hose Valve

With Soft Renewable Disc

Stillbech Bronze Angle Hose Valve Tested by the New York Fire Department and Approved 1928 by the Board of Standards and Appeals of the City of New York.

Prices upon application.

Automatic Siamese Steamer Connections



Made in double and single clapper types. Lettered "Auto Sprinkler" or "Standpipe."

Prices on application.

Complete stock of brass hose goods, fire equipment for buildings, mills, factories and fire departments carried at all times. Send for our booklet on fire equipment specialties.

PHOENIX BRASS FITTINGS CORPORATION IRVINGTON, N. J.

Main Office and Factory—346-360 Coit Street

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Glen Ridge, N. J., N. E. Sippell, 251 Forest Avenue.
Los Angeles, Cal., Wm. P. Horn Co., 509 Wilcox Building.
New Orleans, La., James K. Wadick Co., 1401 Whitney Bank Building.
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San Francisco, Cal., Wm. P. Horn Co., 58 Federal Street.
Seattle, Wash., Wm. P. Horn Co., 102 Smith Tower Annex.



90-Degree Elbow



Street Ell



Tee



Coupling



Bushing



Plug



Cap

P. B. F. Standard Brass Fittings

Working Pressure—125 Pounds Steam; 150 Pounds Water—Flat Bead
All Fittings Air Tested Under Water

List Prices—Each

Rough—For Iron Pipe

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6
Elbows, 90°	$0.12	$0.15	$0.20	$0.28	$0.40	$0.63	$0.90	$1.20	$2.00	$3.50	$ 6.00	$ 8.00	$10.00	$25.00	$40.00
Elbows, Reducing	.....	.19	.25	.35	.50	.80	1.10	1.50	2.50	4.25	7.50	10.00	12.50	30.00	50.00
Elbows, 45°	.16	.20	.25	.31	.40	.63	.90	1.20	2.00	3.50	6.00	8.00	10.00	25.00	40.00
Elbows, Street, 90°	.25	.27	.33	.48	.63	.85	1.50	2.00	3.25	.....	.....	.....	.....	.....	.....
Elbows, Street, 45°	.....	.....	.33	.48	.63	.85	1.50	2.00	3.25	.....	.....	.....	.....	.....	.....
Elbows, Drop, Female	.....	.....	.35	.45	.65	1.05	1.50	2.00	3.40	.....	.....	.....	.....	.....	.....
Tees	.17	.21	.28	.40	.55	.85	1.25	1.70	2.80	5.00	8.50	11.00	14.00	35.00	52.00
Tees, Reducing	.....	.25	.35	.50	.70	1.05	1.55	2.10	3.50	6.25	10.50	14.00	17.50	44.00	65.00
Tees, Drop, Single Ear	.....	.....	.43	.57	.80	1.25	1.85	2.50	4.20	.....	.....	.....	.....	.....	.....
Crosses	.25	.30	.40	.55	.80	1.25	1.80	2.40	4.00	7.00	12.00	16.00	20.00	50.00	80.00
Crosses, Reducing	.....	.38	.50	.70	1.00	1.55	2.25	3.00	5.00	8.75	15.00	20.00	25.00	63.00	100.00
Couplings	.10	.13	.17	.25	.37	.55	.80	1.00	1.60	2.50	3.50	5.25	7.00	15.00	23.00
Couplings, R. & L.	.13	.17	.22	.30	.45	.70	1.00	1.30	2.00	3.10	4.50	.....	.....	.....	.....
Couplings, Reducing	.....	.15	.20	.28	.40	.60	.90	1.10	1.75	2.75	4.00	6.00	8.00	19.00	29.00
†Bushings, Regular	.....	.10	.12	.15	.22	.35	.50	.70	1.00	1.50	2.50	3.75	5.00	12.00	18.00
†Bushings, Faced	.....	.12	.15	.19	.27	.44	.62	.87	1.25	1.85	3.10	4.75	6.25	.....	.....
Plugs, Regular	.08	.10	.12	.15	.20	.30	.45	.60	.95	1.50	2.25	3.75	5.00	8.00	12.00
Plugs, Solid	.....	.....	.18	.22	.30	.45	.80	1.20	1.90	3.00	4.50	7.50	10.00	15.00	23.00
Plugs, Countersunk	.....	.....	.....	.22	.30	.45	.65	.90	1.40	2.25	3.40	.....	7.50	.....	.....
Caps	.10	.13	.16	.20	.30	.42	.60	.80	1.25	2.50	3.50	5.50	7.00	15.00	23.00
Locknuts	.10	.10	.12	.15	.20	.28	.40	.55	.80	1.75	2.75	4.00	5.00	8.00	12.00
Return Bends, Close	.....	.....	.....	.70	1.00	1.25	1.80	2.50	4.25	.....	.....	.....	.....	.....	.....
Return Bends, Open	.....	.....	.....	.80	1.10	1.40	2.15	3.00	4.75	.....	.....	.....	.....	.....	.....
Wyes	.....	.....	.60	.75	1.10	1.65	2.50	3.30	5.50	.....	.....	.....	.....	.....	.....

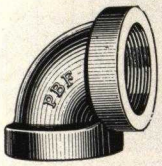
Polished—For Iron Pipe

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4
Elbows, 90°	$0.30	$0.35	$0.45	$0.56	$0.75	$1.10	$1.55	$2.00	$3.00	$ 5.50	$ 9.00	$14.00	$17.50
Elbows, Reducing	.....	.44	.55	.70	.95	1.40	1.90	2.50	3.75	6.75	11.25	17.50	22.00
Elbows, 45°	.38	.45	.55	.66	.85	1.23	1.70	2.20	3.25	6.00	9.75	15.50	19.50
Elbows, Street, 90°	.47	.52	.63	.83	1.08	1.45	2.30	3.00	4.50	.....	.....	.....	.....
Elbows, Street, 45°	.....	.....	.63	.83	1.08	1.45	2.30	3.00	4.50	.....	.....	.....	.....
Elbows, Drop, Female	.....	.....	.85	1.05	1.40	2.00	2.80	3.60	5.40	.....	.....	.....	.....
Tees	.42	.49	.63	.80	1.05	1.50	2.15	2.80	4.20	7.75	12.75	19.50	24.50
Tees, Reducing	.....	.60	.77	1.00	1.30	1.85	2.65	3.50	5.25	9.75	15.80	24.50	30.50
Tees, Drop, Single Ear	.....	.....	1.13	1.37	1.80	2.55	3.65	4.70	7.00	.....	.....	.....	.....
Crosses	.60	.70	.90	1.10	1.50	2.20	3.10	4.00	6.00	11.00	18.00	28.00	35.00
Crosses, Reducing	.....	.88	1.10	1.40	1.85	2.75	3.85	5.00	7.50	13.75	22.50	35.00	44.00
Couplings	.24	.28	.36	.46	.63	.90	1.30	1.60	2.35	4.00	5.75	9.75	12.50
Couplings, R. & L.	.31	.37	.47	.58	.80	1.15	1.65	2.10	3.00	5.10	7.50	.....	.....
Couplings, Reducing	.....	.35	.45	.56	.75	1.05	1.55	1.90	2.75	4.75	7.00	12.00	15.50
Bushings, Regular	.....	.22	.27	.35	.47	.70	1.00	1.40	2.00	3.00	4.50	6.25	8.00
Plugs, Regular	.23	.30	.37	.43	.55	.75	1.00	1.30	1.95	3.00	4.25	6.25	8.00
Plugs, Solid	.....	.....	.43	.50	.65	.90	1.35	1.90	2.90	4.50	6.50	10.00	13.00
Plugs, Countersunk	.....	.....	.....	.42	.55	.80	1.15	1.55	2.25	.....	.....	.....	.....
Caps	.20	.25	.31	.40	.55	.77	1.10	1.50	2.25	4.00	5.50	8.00	10.00
Locknuts	.24	.25	.32	.40	.50	.65	.85	1.10	1.60	3.25	4.75	6.50	8.00
Return Bends, Close	.....	.....	.....	1.55	2.05	2.65	3.75	4.90	7.25	.....	.....	.....	.....
Return Bends, Open	.....	.....	.....	1.65	2.15	2.80	4.10	5.40	7.75	.....	.....	.....	.....
Wyes	.....	.....	1.35	1.60	2.15	3.05	4.45	5.70	8.50	.....	.....	.....	.....

Polished and Nickel Plated—For Iron Pipe (For Chromium add 25% to N. P. List)

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4
Elbows, 90°	$0.36	$0.42	$0.53	$0.65	$0.87	$1.25	$1.75	$2.25	$3.35	$ 6.15	$10.00	$16.00	$20.00
Elbows, Reducing	.....	.52	.65	.82	1.10	1.60	2.15	2.85	4.15	7.60	12.50	20.00	25.00
Elbows, 45°	.45	.53	.65	.78	1.00	1.43	1.95	2.55	3.65	6.85	11.00	18.00	22.50
Elbows, Street, 90°	.54	.60	.73	.95	1.23	1.65	2.55	3.35	4.90	.....	.....	.....	.....
Elbows, Street, 45°	.....	.....	.73	.95	1.23	1.65	2.55	3.35	4.90	.....	.....	.....	.....
Elbows, Drop, Female	.....	.....	1.00	1.25	1.65	2.30	3.20	4.10	6.00	.....	.....	.....	.....
Tees	.50	.58	.75	.93	1.22	1.70	2.45	3.15	4.65	8.65	14.00	22.30	28.00
Tees, Reducing	.....	.72	.90	1.15	1.50	2.10	3.00	3.95	5.85	10.90	17.50	28.00	35.00
Tees, Drop, Single Ear	.....	.....	1.33	1.62	2.15	2.95	4.25	5.45	7.90	.....	.....	.....	.....
Crosses	.72	.84	1.05	1.30	1.75	2.50	3.50	4.50	6.70	12.30	20.00	32.00	40.00
Crosses, Reducing	.....	1.05	1.30	1.65	2.15	3.15	4.35	5.70	8.30	15.40	25.00	40.00	50.00
Couplings	.29	.33	.42	.53	.72	1.00	1.45	1.80	2.60	4.50	6.50	11.25	14.25
Couplings, R. & L.	.37	.44	.55	.67	.92	1.30	1.85	2.35	3.35	5.75	8.50	.....	.....
Couplings, Reducing	.....	.42	.53	.65	.87	1.20	1.75	2.15	3.10	5.40	8.00	14.00	18.00
†Bushings, Regular	.....	.26	.32	.42	.55	.82	1.15	1.65	2.35	3.50	5.15	7.10	9.00
Plugs, Regular	.28	.37	.45	.52	.67	.90	1.20	1.55	2.30	3.50	4.90	7.10	9.00
Plugs, Solid	.....	.....	.51	.59	.77	1.05	1.55	2.15	3.25	5.00	7.15	10.85	14.00
Plugs, Countersunk	.....	.....	.....	.49	.63	.92	1.30	1.75	2.55	.....	.....	.....	.....
Caps	.23	.29	.36	.47	.63	.89	1.25	1.75	2.60	4.50	6.15	8.85	11.00
Locknuts	.29	.30	.39	.48	.60	.77	1.00	1.30	1.85	3.75	5.40	7.35	9.00
Return Bends, Close	.....	.....	.....	1.85	2.40	3.10	4.40	5.70	8.25	.....	.....	.....	.....
Return Bends, Open	.....	.....	.....	1.95	2.50	3.25	4.75	6.20	8.75	.....	.....	.....	.....
Wyes	.....	.....	1.60	1.90	2.50	3.50	5.10	6.50	9.50	.....	.....	.....	.....

Note—Right and Left Elbows and Right and Left Return Bends furnished at an advance of 25% over above prices.
†Bushings reducing more than two sizes, other than stock sizes, furnished at an advance of 25% over above prices.



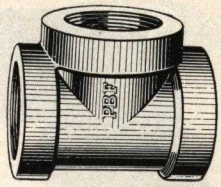
90-Degree Elbow

P. B. F. Extra Heavy Brass Fittings

Iron Pipe Size

Working Pressure 250 Pounds—Steam

List Prices—Each



Tee

Cast Iron Pattern—Rough—For Iron Pipe

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4
Elbows, 90°	$0.33	$0.45	$0.65	$1.00	$1.50	$2.25	$3.00	$4.50	$8.00	$11.25	$16.00	$22.00
Elbows, Reducing	.....	.55	.75	1.20	1.80	2.60	3.50	5.25	9.00	13.00	19.00	25.00
Elbows, 45°	.45	.55	.75	1.10	1.65	2.50	3.25	4.50	8.00	11.25	16.00	22.00
Elbows, R. & L.	.40	.55	.75	1.20	1.80	2.60	3.50	5.25	9.00	13.00	.....	.....
Tees	.45	.60	.90	1.35	2.00	3.00	4.00	6.00	10.75	15.00	22.00	30.00
Tees, Reducing	.....	.70	1.05	1.55	2.30	3.50	4.50	6.75	12.00	17.00	25.00	35.00
Crosses	.70	.90	1.30	2.00	3.00	4.50	6.00	9.00	16.00	22.50	28.00	37.00
Crosses, Reducing	.....	1.10	1.50	2.40	3.60	5.25	7.00	10.50	18.00	26.00	32.00	42.00
Couplings	.40	.50	.70	1.10	1.65	2.25	3.00	4.50	7.00	10.00	13.00	17.00
Return Bends, Close	.....	.....	1.65	2.50	3.50	5.00	7.00	10.00	16.00	22.00	30.00	40.00
Return Bends, Open	.....	.....	1.80	2.75	4.00	5.50	8.00	11.00	18.00	25.00	35.00	45.00
Wyes	.90	1.10	1.50	2.50	3.50	5.50	7.25	11.00	19.00	27.00	33.00	45.00

Cast Iron Pattern—Polished—For Iron Pipe

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4
Elbows, 90°	$0.73	$0.95	$1.25	$1.75	$2.50	$3.50	$4.50	$6.25	$10.50	$14.75	$23.50	$31.00
Elbows, Reducing	.....	1.15	1.50	2.10	3.00	4.10	5.35	7.50	12.00	17.25	28.00	36.00
Elbows, 45°	.95	1.15	1.50	2.00	2.85	4.00	5.10	6.75	11.00	15.50	25.00	33.00
Elbows, R. & L.	.90	1.15	1.50	2.10	3.00	4.10	5.35	7.50	12.00	17.25	.....	.....
Tees	1.00	1.25	1.70	2.35	3.35	4.65	6.00	8.35	14.00	19.75	32.00	42.00
Tees, Reducing	.....	1.50	2.05	2.80	4.00	5.50	7.00	9.75	16.00	23.00	37.00	50.00
Crosses	1.50	1.90	2.50	3.50	5.00	7.00	9.00	12.50	21.00	29.50	43.00	55.00
Crosses, Reducing	.....	2.35	3.00	4.25	6.00	8.25	10.75	15.00	24.00	35.00	50.00	64.00
Couplings	.75	.90	1.15	1.70	2.40	3.20	4.15	5.85	9.00	13.00	18.50	24.00
Return Bends, Close	.....	.....	2.85	4.00	5.50	7.50	10.00	13.50	21.00	29.00	45.00	58.00
Return Bends, Open	.....	.....	3.00	4.25	6.00	8.00	11.00	14.50	23.00	32.00	50.00	63.00
Wyes	1.70	2.10	2.70	4.00	5.50	8.00	10.25	14.50	24.00	34.00	48.00	63.00

Caps—Sizes and List Prices on Application. Plugs—See "Solid Plugs" on Standard List Prices. Reducing Couplings—Add 25% to Coupling List Prices. List Prices for 5, 6 and 8-inch Extra Heavy Fittings on Application.

P. B. F. Brass Companion Flanges

Rough—Iron Pipe Size



For companion flanges, also blank companion flanges, dimensions of which are not listed below, prices quoted on application.

In ordering specify whether required faced only or faced and drilled.

Reducing flanges, prices on application.

125 Pounds—Standard

Size Inches	Price Faced Each	Price Faced and Drilled Each	Thickness of Flanges Inches	Number of Bolts	Diameter of Bolts	Diameter of Bolt Circle
1 x 4¼	$ 5.75	$ 6.00	⅜	4	½	3⅛
1¼ x 4⅝	6.75	7.00	13/32	4	½	3½
1½ x 5	8.75	9.00	7/16	4	½	3⅞
2 x 6	10.75	11.00	½	4	⅝	4¾
2½ x 7	12.50	13.00	9/16	4	⅝	5½
3 x 7½	15.50	16.00	⅝	4	⅝	6
3½ x 8½	19.25	20.00	11/16	8	⅝	7
4 x 9	24.25	25.00	11/16	8	⅝	7½
5 x10	29.00	30.00	¾	8	¾	8½
6 x11	36.50	37.50	13/16	8	¾	9½
8 x13½	Prices		13/16	8	¾	11¾
10 x16	on		1	12	⅞	14¼
12 x19	Application		1 1/16	12	⅞	17

250 Pounds—Extra Heavy

Size Inches	Price Faced Each	Price Faced and Drilled Each	Thickness of Flanges Inches	Number of Bolts	Diameter of Bolts	Diameter of Bolt Circle
1 x 4⅞	$ 5.75	$ 6.00	½	4	⅝	3½
1¼ x 5¼	6.75	7.00	17/32	4	⅝	3⅞
1½ x 6⅛	8.75	9.00	9/16	4	¾	4½
2 x 6½	10.75	11.00	⅝	8	⅝	5
2½ x 7½	12.50	13.00	11/16	8	¾	5⅞
3 x 8¼	15.50	16.00	¾	8	¾	6⅝
3½ x 9	19.25	20.00	13/16	8	¾	7¼
4 x10	24.25	25.00	⅞	8	¾	7⅞
5 x11	29.00	30.00	15/16	8	¾	9¼
6 x12½	36.50	37.50	1	12	¾	10⅝
8 x15	Prices		1⅛	12	⅞	13
10 x17½	on		1 3/16	16	1	15¼
12 x20½	Application		1¼	16	1⅛	17¾

P. B. F. Brass Unions

Iron Pipe Size—Ground Joint—Octagon and Hexagon

Standard (For 125 Pounds Steam Working Pressure)



Union

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Rough—Octagon	$0.40	$0.50	$0.65	$0.85	$1.15	$1.60	$2.25	$2.70	$4.00	$ 7.50	$11.50
Semi-Finished—Hexagon	.45	.55	.75	.95	1.30	1.75	2.50	3.00	4.50	8.25	12.75
Polished—Hexagon	.50	.60	.85	1.05	1.40	1.90	2.75	3.25	5.00	9.00	14.00
Polished and Nickel Plated—Hexagon	.60	.72	1.02	1.26	1.68	2.28	3.30	3.90	6.00	10.80	16.80
Rough or Polished Tinned—Hexagon	.65	.75	1.05	1.30	1.70	2.35	3.30	3.85	5.90	10.20	16.25

(Also made in ¾-inch fine thread.)

Heavy—(For 200 Pounds Steam Working Pressures)—Navy Pattern

Rough—Octagon	$0.60	$0.65	$0.85	$1.10	$1.50	$2.00	$2.80	$3.60	$5.25	$ 9.00	$14.00
Rough Tinned—Octagon	.85	.90	1.25	1.55	2.05	2.75	3.85	4.75	7.15	11.70	18.75

Extra Heavy—(For 250 Pounds Steam Working Pressures)

Rough—Octagon	$0.85	$1.10	$1.40	$1.60	$1.85	$3.00	$4.00	$5.25	$7.50	.....	.....
Polished—Octagon	1.10	1.35	1.70	1.95	2.25	3.50	4.60	5.90	8.40	.....	.....
Polished and Nickel Plated—Octagon	1.30	1.55	1.95	2.25	2.60	4.00	5.20	6.55	9.20	.....	.....

See Following Page



Brass Wash Tray Tee

Brass Extension Pieces

Size ..... Inches	3/8	1/2	3/4	1
Rough ..... Each	$0.40	$0.55	$0.80	$1.20
Polished ..... Each	.65	.85	1.15	1.65
Nickel Plated ..... Each	.73	.94	1.27	1.80



Brass Extension Piece

Brass Wash Tray Fittings

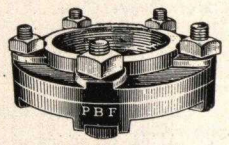
Size ..... Inches	1/2	3/4
Rough—Short Pattern ..... Each	$1.10	$1.50
Rough—Long Pattern ..... Each	1.40	.....

Brass Crossovers

Size ..... Inches	1/2	3/4
Rough ..... Each	$1.20	$1.50
Polished ..... Each	2.40	3.00
Nickel Plated ..... Each	2.75	3.45

Brass Flange Unions

	Standard—125 Pounds Pressure						Extra Heavy—250 Pounds Pressure					
Size ..... Inches	1 1/4	1 1/2	2	2 1/2	3	4	1 1/4	1 1/2	2	2 1/2	3	4
List Price, Rough	$5.50	$7.00	$9.00	$11.50	$15.00	$22.00	$11.00	$13.00	$16.00	$18.00	$24.00	$30.00
Diameter Flanges	4 1/8	4 1/2	5 1/8	5 3/4	6 5/8	7 3/4	4 1/8	4 1/2	5 1/8	5 3/4	6 5/8	7 3/4
Number of Bolts	4	4	4	4	4	5	4	4	4	4	4	5



Flange Union

Floor Flanges

Iron Pipe Size — (Holes Drilled)

Size ..... Inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Rough	$0.15	$0.22	$0.28	$0.35	$0.47	$0.60	$0.80	$0.95	$1.55
Standard Diameter ..... Inches	1 5/8	2	2 1/4	2 1/2	3	3 1/4	3 3/4	4	4 5/8

For Polished—Add 50%. For Nickel Plated—Add 60%.

Brass Nipples—Iron Pipe Size

Size Inches	Length Close	Close	Length Nipples (longer than close), Inches									
			1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2	6
1/8	3/4	$0.11	$0.13	$0.15	$0.17	$0.19	$0.21	$0.23	$0.25	$0.27	$0.29	$0.31
1/4	7/8	.13	.16	.19	.22	.25	.28	.31	.34	.37	.40	.43
3/8	1	.15	.19	.23	.27	.31	.35	.39	.43	.47	.51	.55
1/2	1 1/8	.23	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70
3/4	1 3/8	.28	.....	.35	.42	.49	.56	.63	.70	.77	.84	.91
1	1 1/2	.37	.....	.44	.53	.62	.71	.80	.89	.98	1.07	1.16
1 1/4	1 5/8	.60	.....	.....	.75	.88	1.01	1.14	1.27	1.40	1.53	1.65
1 1/2	1 3/4	.70	.....	.....	.90	1.05	1.20	1.35	1.50	1.65	1.80	1.95
2	2	1.00	.....	.....	1.20	1.40	1.60	1.80	2.00	2.20	2.40	2.60
2 1/2	2 1/2	1.70	.....	.....	.....	2.00	2.30	2.60	2.90	3.20	3.50	3.80
3	2 1/2	2.50	.....	.....	.....	2.90	3.30	3.70	4.10	4.50	4.90	5.30
3 1/2	2 3/4	4.00	.....	.....	.....	.....	.....	5.40	6.00	6.60	7.20	7.80
4	3	4.75	.....	.....	.....	.....	.....	6.15	6.85	7.55	8.25	8.95
4 1/2	3	5.50	.....	.....	.....	.....	.....	7.20	8.05	8.90	9.75	10.60
5	3 1/2	8.50	.....	.....	.....	.....	.....	.....	10.60	11.65	12.70	13.75
6	3 1/2	11.50	.....	.....	.....	.....	.....	.....	14.10	15.40	16.70	18.00

P. B. F. Copper Tube Fittings

Cast Brass—Tested

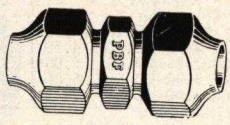


Fig. 201

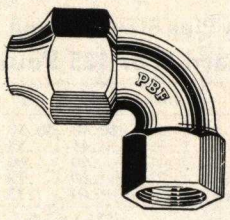


Fig. 208

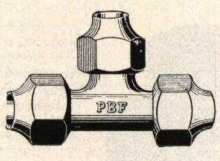


Fig. 211

Fig. 201—Copper to Copper Coupling ..... Sizes 3/8, 1/2, 3/4 and 1-inch
Fig. 203—Copper to Female Coupling ..... Sizes 3/8, 1/2, 3/4 and 1-inch
Fig. 204—Copper to Male I. P. Coupling ..... Sizes 3/8, 1/2, 3/4 and 1-inch
Fig. 208—Copper to Female I. P. 90° Elbow ..... Sizes 3/8, 1/2 and 3/4-inch
Fig. 209—Copper to Male I. P. 90° Elbow ..... Sizes 3/8, 1/2 and 3/4-inch
Fig. 211—Copper to Copper to Copper Tee ..... Size 3/8-inch

Brass Ferrules

Fig. F-350

For inserting lead pipe into ferrules. Fits without beating.



Fig. F-350

Brass Bend Ferrules

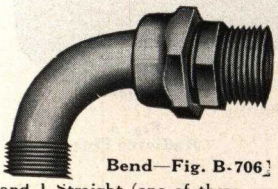
Fig. F-400

One-eighth bend ferrules in sizes 2 and 4 inches. Also make ¼-bend ferrules in sizes 2 and 4 inches.

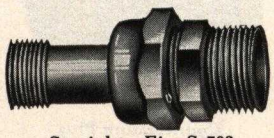


Fig. F-400

Brass Boiler Couplings



Bend—Fig. B-706



Straight—Fig. S-703

Semi-Finished — Ground Joint or Flat Face. Packed usually in sets of 4 pieces, consisting of 3 Bents and 1 Straight (one of these spuds tapped ½ I. P. S. Female). If ordered this way specify Set No. 700. Also sold individually. Male or Female.

Y and T Branch Ferrules

Cast Brass—For Caulking

Fig. Y500—1½-inch I. P. S. Single Y Outlet.
Fig. Y501—2 -inch I. P. S. Single Y Outlet.
Fig. Y502—1½-inch I. P. S. Double Y Outlet.
Fig. Y503—2 -inch I. P. S. Double Y Outlet.
Fig. T504—1½-inch I. P. S. Single T Outlet.
Fig. T505—2 -inch I. P. S. Single T Outlet.

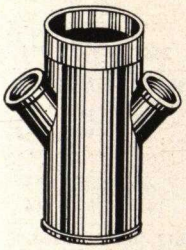


Fig. Y-502

Cast Brass Traps With Cleanout

Fig. 80

Full Seal—N. Y. Reg. Pattern

Sizes—Inches

Fig. 80—1½, Slip 1¼ or 1½.
Fig. 85—2 , Slip 1½ or 1¼.
Rough, Polished, Pol. & N. P. or Chrom.

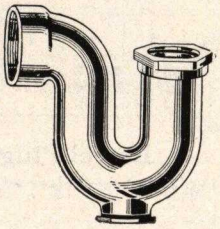


Fig. 80

Closet Floor Flanges

Fig. F-501—Cast Brass

Regularly made, 7-inch diameter, 14-ounce N. Y. R. and 16-ounce.

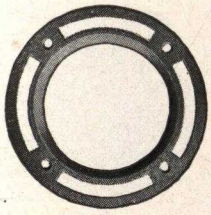


Fig. F-501

Urinal Spreader

Fig. U-1104—Cast Brass

Nickel Plated or Chromium Plated. Adjustable—Size ¾-inch O. D. and 1-inch O. D.



Fig. U-1104

Floor and Ceiling Plates

Cast Brass

Made in rough brass, nickel plated or chromium plated.

Fig. 1—Split pattern with set screw in sizes ½ to 2½ inches.

Fig. 2—Solid pattern in sizes ½ to 2 inches.



Fig. 1

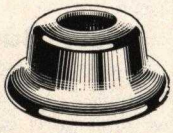


Fig. 2

Pipe Hangers—Cast Brass

Made in rough, polished, nickel or chromium plated. Sizes ½ and ¾-inch.



Fig. 3



Fig. F-120

Standard Reducing Brass Ferrules

Fig. F-120

Reducing ferrules in sizes 2x1¼ and 2x1½ inches, lengths 3½ and 4 inches. Also straight ferrules for standard pipe.

Fresh Air Plates

Fig. X-1003

Polished Brass or Aluminum. Diameter, 7 and 8 inches.

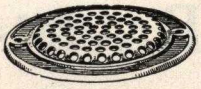


Fig. X-1003

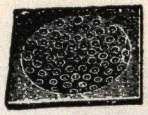


Fig. X-1004

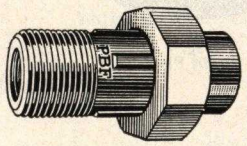
Cesspool Plates—Square Pattern

Fig. X-1004

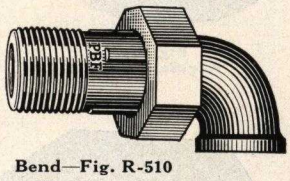
Square Pattern. Cast brass, polished. Sizes 6x6, 8x8, 10x10 and 12x12 inches.

Rough Boiler Couplings

Malleable Pattern—Flat Face or Ground Joint



Straight—Fig. R-511



Bend—Fig. R-510

Cast brass, malleable pattern—Packed in sets of 3 Bents and 1 Straight, or sold individually.

1x¾—Set No. R500. 1x¾—Straight only—R511 1x¾—Bent only—R510
1x½—Set No. R501 1x½—Straight only—R521 1x½—Bent only—R520

Y and T Branch Screw Ferrules

Cast Brass—Iron Pipe Size

Fig. Y525—4-inch Male with 2-inch Single 30° Y Outlet.
Fig. Y526—4-inch Male with 2-inch Single 45° Y Outlet.
Fig. T527—4-inch Male with 2-inch Single T Outlet.
Fig. Y528—4-inch Female with 2-inch Single 45° Y Outlet.

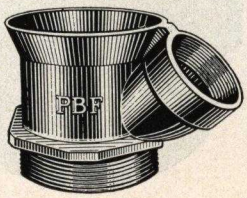


Fig. Y-525

Urinal Strainer

Fig. U-1102—Cast Brass

Nickel Plated or Chromium Plated, with 3-inch diameter removable grate. 4½-inch diameter top. Cup flange 2½ inches I. D. For 2 and 3-inch Lead Pipe and 2-inch I. P. S.

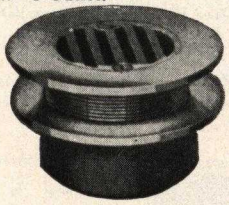


Fig. U-1102

Shower Strainer

Fig. U-1101—Cast Brass

Nickel or Chromium Plated with 2-inch diameter removable strainer. For 2-inch Lead Pipe or 2-inch I. P. S.

Soldering Bushings

Heavy hexagon Flange Pattern with standard I. P. male thread; sizes 1¼ to 6-inch.

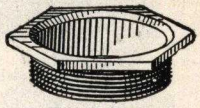


Fig. S-621

Size and Threading

Size, Inches	Threading	Size, Inches	Threading
1¼	Male	2	Male
1¼	Female	3 (also in Ex. Hy.)	Male
1½	Male	4	Male
1½	Female	4 Ex. Hy.	Male
1½x1¼	Male	5	Male
1½x1¼	Female	6	Male

Bellmouth Soldering Bushings—Fig. B-622

Cast Brass		Standard	Iron Pipe Size
1¼	Male	1½	Male

Soldering Nipples—Fig. N-600

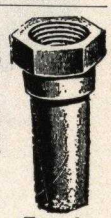
Made of yellow or red brass; male or female; sizes from ½ to 4 inches, inclusive.

Sizes and Weights

Size, In.	Approx. Weight	Size, In.	Approx. Weight
½	3 oz.	1½	8 oz.
¾	4 oz.	2	14 oz.
1	6 oz.	3	32 oz.
1¼	7 oz.	4	56 oz.



Male



Female

Other Items Manufactured By Us

METER COUPLINGS—Cast Brass—Sizes, ⅝-inch, ¾-inch, 1-inch.

HEATER COUPLINGS—for Hotstream, Rex, Sands or Humphrey.

Fig. T-340—IRON BODY CLEANOUT with brass trap screw—Std., Extra Heavy and N. Y. R.—Sizes, 2-inch to 8-inch.

Fig. T-1340—BRASS BODY CLEANOUT with brass trap screw—Std. and Extra Heavy—Sizes, 2-inch to 8-inch.

Fig. B.C.50—1½-inch Basin Tee to Caulk—Brass.

Fig. S.V.60—1½-inch Straight Vent Coupling—Brass.

Fig. S.V.61—2-inch Straight Vent Coupling—Brass.

Fig. B.V.70—1½-inch Bent Vent Coupling—Brass.

Fig. B.V.71—2-inch Bent Vent Coupling—Brass.

Fig. B.W.80—Back Water Valve Brass—Hartford Regulation.

Bath Traps—Unfinished Cast Brass—Slip Joint Inlet.

Fig. B.T.90—1½-inch Trap—1½-inch Inlet.

Fig. B.T.91—1½-inch Trap—1⅜-inch Inlet.

Fig. B.T.92—1½-inch Trap with 1½-inch Female I. P. S. Inlet.

Fig. B.T.95—2-inch Trap—2-inch Slip Joint Inlet.

Fig. B.T.96—2-inch Trap—1½-inch Slip Joint Inlet.

Fig. B.T.97—2-inch Trap with 2-inch Female I. P. Inlet.

MONTCLAIR TRAPS—Nickel or Chromium—1½-inch I. P. S. to slip 1½-inch or 1¼-inch. 2-inch I. P. S. to slip 1½-inch or 1¼-inch.

RAVENA IRON COMPANY — RAVENA, N. Y.

Cast Iron Pipe Fittings

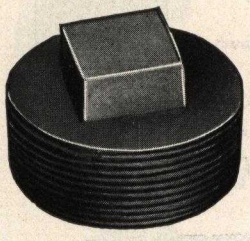


Fig. 1
Regular Plug

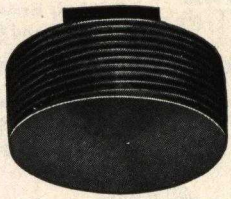


Fig. 2
Solid Plug

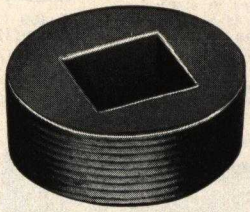


Fig. 3
Countersunk Plug

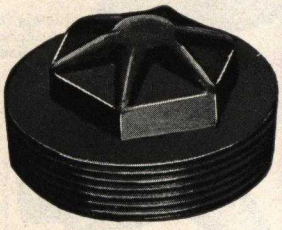


Fig. 4
Radiator Plug

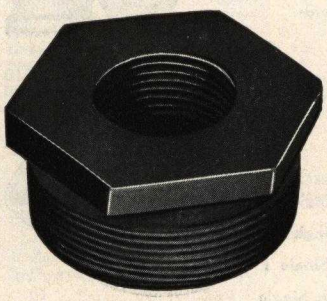


Fig. 5
Regular Bushing

Plugs

Size Pipe.....Inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2
Regular	$0.02	$0.02	$0.02	$0.02	$0.03	$0.04	$0.05	$0.07	$0.10	$0.18	$0.25	$0.38
Regular, L. H.	.....	.....	.....	.04	.06	.08	.09	.11	.15	.....	.....	.....
Solid	.....	.04	.04	.04	.06	.08	.09	.11	.15	.27	.38	.57
Countersunk	.....	.....	.04	.04	.06	.08	.09	.11	.15	.30	.40	.92
Radiator	.....	.....	.....	.....	.....	.....	.10	.14	.20	.....	.....	.....
Slotted	.03	.04	.05	.....	.....	.....	.....	.....	.....	.....	.....	.....

Size Pipe.....Inches	4	4 1/2	5	6	7	8	9	10	12	14	15	16
Regular	$0.42	.....	$0.88	$1.20	.....	$2.75	.....	$3.75	$5.00	$12.50	$15.00	$20.00
Solid	.63	.....	1.35	1.80	.....	4.15	.....	5.75	7.50	18.75	22.50	30.00
Countersunk	1.10	.....	2.00	3.50	.....	.....	.....	.....	.....	.....	.....	.....

Galvanized Plugs double above list prices.

Barrel Plugs

3/4, 1 1/2, 2 Inches—Prices on Application

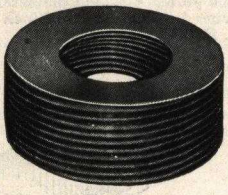


Fig. 7
Faced Bushing

Bushings

Size Pipe.....Inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Regular	$0.04	$0.04	$0.04	$0.05	$0.06	$0.07	$0.09	$0.14	$0.21	$0.30	$0.40	$0.50
Regular Eccentric	.....	.....	.....	.....	.....	.22	.25	.27	.42	.60	.80	1.00
Radiator	.....	.....	.....	.....	.....	.11	.14	.21	.....	.....	.....	.....
Radiator Eccentric	.....	.....	.....	.....	.....	.22	.25	.27	.....	.....	.....	.....

Size Pipe.....Inches	4 1/2	5	6	7	8	9	10	12	14	15	16
Regular	.....	$0.93	$1.25	.....	$2.75	.....	$3.75	$5.00	$12.50	$15.00	$22.00
Regular Eccentric	.....	1.85	2.50	.....	.....	.....	.....	.....	.....	.....	.....

Galvanized Bushings double above list prices.

Tank Bushings

Prices on Application



Fig. 8
Radiator Bushing

Faced Bushings

Size Pipe.....Inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Black	$0.08	$0.09	$0.11	$0.13	$0.17	$0.22	$0.32	$0.48	$0.70	$1.20	$1.50
Galvanized	.12	.14	.17	.20	.25	.33	.48	.72	1.05	1.80	2.25

Size Pipe.....Inches	4 1/2	5	6	7	8	9	10	12	14	15
Black	.....	$2.60	$3.75	.....	$ 8.25	.....	$11.25	$15.00	$37.50	$45.00
Galvanized	.....	3.90	5.63	.....	12.37	.....	16.87	22.50	56.25	67.50

Caps and Locknuts

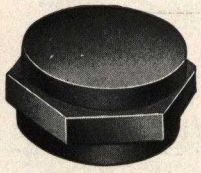


Fig. 9
Pipe Cap

Size Pipe.....Inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2
Caps, Cast Iron	$0.03	$0.03	$0.03	$0.03	$0.05	$0.08	$0.14	$0.20	$0.26	$0.40	$0.54	$0.75
Locknuts	.04	.04	.06	.06	.07	.08	.10	.12	.25	.27	.34	.47

Size Pipe.....Inches	4	4 1/2	5	6	7	8	9	10	12	14	15	16
Caps, Cast Iron	$0.87	.....	$1.20	$1.55	.....	$2.85	.....	$5.50	$7.00	$19.00	$22.00	$25.00
Locknuts	.64	.....	.90	1.30	.....	2.35	.....	3.00	4.00	.....	.....	.....

Galvanized Cast Iron Caps and Locknuts double above list prices.

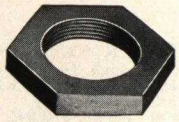


Fig. 17
Locknut

Cast Iron Pipe Fittings

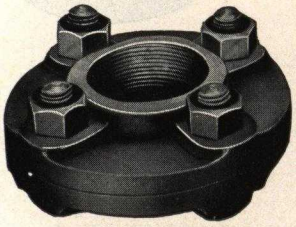


Fig. 10
Standard Flange Union

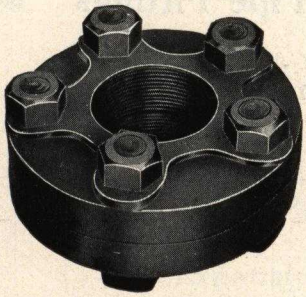


Fig. 11
Extra Heavy Flange Union

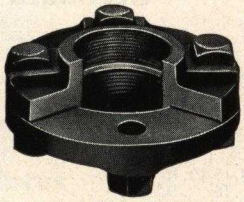


Fig. 13
With Lip—O. C. Union

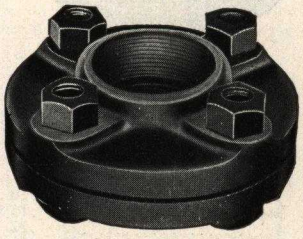


Fig. 14
Plain Face—O. C. Union

Flange Unions

Size Pipe.....Inches	½	¾	1	1¼	1½	2	2½	3	3½	4	4½
Regular	$0.40	$0.46	$0.52	$0.64	$0.78	$1.00	$1.25	$1.50	$1.80	$2.10	.....
Extra Heavy	.60	.70	.80	1.00	1.15	1.50	1.90	2.25	2.70	3.15	.....

Size Pipe.....Inches	5	6	7	8	9	10	12	14	15	16
Regular	$3.15	$3.95	.....	$ 7.00	.....	$11.50	$16.00	$28.00	$35.00	$60.00
Extra Heavy	4.75	6.00	.....	10.50	.....	17.25	24.00	.....	.....	.....

Galvanized Flange Union double above list prices.

Oil Country Flange Unions

Size Pipe.....Inches	1	1¼	1½	2	2	2½	3	3	4	5	6
No. Bolts	4	4	4	4	5	4	4	5	5	5	6
Price	$0.80	$1.00	$1.20	$1.50	$2.00	$1.75	$2.00	$2.50	$3.00	$4.50	$6.00



Fig. 28
Screwed Foot Valve

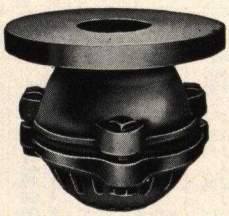


Fig. 29
Flanged Foot Valve

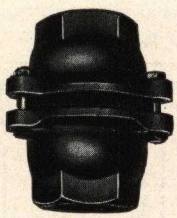


Fig. 30
Screwed Retention Valve

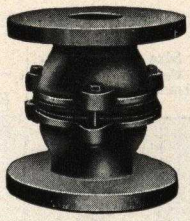


Fig. 31
Flanged Retention Valve

Foot Valves

Size Pipe.....Inches	½	¾	1	1¼	1½	2	2½	3	3½
Screwed, Black	$1.15	$1.15	$1.30	$1.40	$1.90	$2.40	$3.30	$3.90	$5.60
Screwed, Galvanized	1.75	1.75	2.00	2.10	2.85	3.60	5.00	5.75	8.50
Flanged, Black	.....	.....	.....	.....	.....	3.50	4.50	5.75	7.50
Flanged, Galvanized	.....	.....	.....	.....	.....	5.50	7.00	9.00	12.00

Size Pipe.....Inches	4	4½	5	6	7	8	10	12
Screwed, Black	$ 7.30	.....	$11.25	$14.75	.....	$41.00	$64.00	$100.00
Screwed, Galvanized	11.00	.....	16.75	22.00	.....	62.00	110.00	155.00
Flanged, Black	9.50	.....	14.00	17.50	.....	45.00	70.00	112.00
Flanged, Galvanized	15.00	.....	22.00	27.00	.....	72.00	120.00	170.00

Retention Valves

Size Pipe.....Inches	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8	10	12
Screwed, Black	$0.70	$0.70	$0.70	$0.75	$1.00	$1.30	$1.85	$2.60	$3.80	$4.20	.....	$ 6.60	$ 9.00	.....	$24.00	$43.50	$87.00
Screwed, Galvanized	1.10	1.10	1.10	1.15	1.60	2.20	3.00	4.10	5.80	6.38	.....	9.80	16.00	.....	45.00	75.00	135.00
Flanged, Black	.....	.....	.....	.....	.....	2.50	3.15	3.40	4.60	5.50	.....	7.60	12.20	.....	24.80	45.00	92.00
Flanged, Galvanized	.....	.....	.....	.....	.....	3.40	4.20	4.35	6.80	8.30	.....	11.40	18.50	.....	49.60	78.00	144.00

See Following Page



Fig. 18
Companion Flange

Cast Iron Pipe Fittings

Standard Flanges—Not Faced

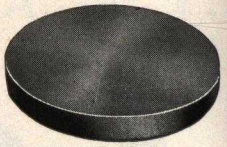


Fig. 20
Blind Flange

Size Pipe.....Inches	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8	9	10	12	14	15	16
Diameter, Inches																						
3	$0.10	$0.10																				
3½	.15	.15	$0.15	$0.15	$0.16																	
4	.22	.22	.22	.16	.16																	
4½	.25	.25	.25	.25	.25	$0.22																
5	.35	.35	.30	.30	.30	.30	$0.35															
5½	.45	.45	.45	.40	.40	.40	.35	$0.40														
6	.50	.50	.50	.42	.40	.40	.42	.42	$0.50													
6½		.65	.60	.60	.60	.55	.50	.50	.50	$0.65												
7		.75	.75	.75	.70	.70	.62	.62	.62	.75												
7½		.90	.90	.90	.85	.85	.80	.80	.75	.85	$0.90											
8		1.00	1.00	1.00	.95	.95	.90	.90	.90	.90	.90											
8½		1.25	1.25	1.25	1.15	1.15	1.10	1.10	1.10	1.00	1.00											
9				1.35	1.35	1.35	1.30	1.25	1.15	1.15	1.15		$1.40									
9¼					1.90	1.90	1.75	1.75	1.60	1.60	1.50		1.50	$1.50								
10					2.25	2.25	2.15	2.00	1.80	1.50	1.50		1.50	1.50								
11							2.50	2.50	2.25	2.25	2.00		1.75	1.75								
12								3.00	3.00	2.75	2.50		2.20	2.20		$2.80						
12½								3.00	3.00	2.75	2.50		2.20	2.20		2.80						
13									3.50	3.50	3.25		3.00	2.80		2.80						
13½									3.50	3.50	3.25		3.00	2.80		2.80						
14									4.00	4.00	3.75		3.50	3.25		3.25		$4.00				
15																4.00		4.50				
16																5.00		5.00	$6.00			
17																6.50		5.75	7.00			
18																8.00		7.00	7.00			
19																		7.50	7.50			
20		18x25	$20.50																8.50	$8.50		
21		20x22½	23.50																	9.50		
22¼		22x29½	26.50																		$14.00	
23½		24x32	31.50																			$18.00

Companion Flanges

STANDARD

Size Pipe Inches	Diameter Flange Inches	Companion		Reducing		Blind	
		Faced	F. & D.	Faced	F. & D.	Faced	F. & D.
1	4¼	$ 0.55	$ 0.80	$ 1.05	$ 1.30	$ 0.85	$ 1.10
1¼	4⅝	.60	.85	1.10	1.35	.90	1.15
1½	5	.65	.90	1.15	1.40	1.00	1.25
2	6	.75	1.00	1.30	1.55	1.15	1.40
2½	7	.85	1.10	1.45	1.70	1.30	1.55
3	7½	.95	1.25	1.55	1.85	1.40	1.70
3½	8½	1.20	1.55	2.00	2.35	1.80	2.15
4	9	1.35	1.80	2.20	2.65	2.00	2.45
4½	9¼						
5	10	1.60	2.05	2.65	3.10	2.40	2.85
6	11	2.00	2.50	3.30	3.80	3.00	3.50
7	12½						
8	13½	3.10	3.80	5.10	5.80	4.60	5.30
9	15						
10	16	4.50	5.50	7.45	8.45	6.75	7.75
12	19	6.50	7.65	10.75	11.90	9.75	10.90
14	21	9.00	10.35	15.00	16.35	13.50	14.85
15	22¼	11.50	13.20	19.00	20.70	17.00	18.70
16	23½	13.50	15.30	22.00	23.80	20.00	21.80
18	25	16.00	18.00	26.50	28.50	24.00	26.00
20	27¼	19.00	21.50	31.00	33.50	28.00	30.50
22	29½	22.00	25.00	36.00	39.00	33.00	36.00
24	32	27.00	30.50	44.00	47.50	40.00	43.50

EXTRA HEAVY

Size Pipe Inches	Diameter Flange Inches	Companion		Reducing		Blind	
		Faced	F. & D.	Faced	F. & D.	Faced	F. & D.
1	4⅞	$ 0.95	$ 1.30	$ 1.60	$ 1.95	$ 1.45	$ 1.80
1¼	5¼	1.00	1.35	1.65	2.00	1.50	1.85
1½	6⅛	1.10	1.45	1.80	2.15	1.65	2.00
2	6½	1.25	1.60	2.10	2.45	1.90	2.25
2½	7½	1.40	1.75	2.30	2.65	2.10	2.45
3	8¼	1.60	2.05	2.65	3.10	2.40	2.85
3½	9	2.00	2.55	3.30	3.85	3.00	3.55
4	10	2.25	2.95	3.70	4.40	3.35	4.05
4½	10½						
5	11	2.65	3.35	4.40	5.10	4.00	4.70
6	12½	3.30	4.05	5.50	6.25	5.00	5.75
7	14						
8	15	5.10	6.15	8.40	9.45	7.65	8.70
9	16¼						
10	17½	7.40	8.90	12.00	13.50	11.00	12.50
12	20½	10.75	12.50	17.50	19.25	16.00	17.75
14	23	15.00	17.00	25.00	27.00	22.50	24.50
15	24½	19.00	21.50	31.50	34.00	28.50	31.00
16	25½	22.25	25.00	37.00	39.75	33.50	36.25
18	28	26.00	29.00	43.00	46.00	39.00	42.00
20	30½	31.00	35.00	51.00	55.00	46.00	50.00
22	33	36.00	41.00	60.00	65.00	54.00	59.00
24	36	45.00	50.00	74.00	79.00	67.00	72.00



Fig. 43
Straight Reducer

Reducers

Size Pipe.....Inches	¾	1	1¼	1½	2	2½	3	3½	4
Straight	$0.10	$0.16	$0.22	$0.28	$0.43	$0.60	$0.80	$1.00	$1.35
Eccentric		.55	.55	.72	1.00	1.50	2.40	3.00	4.00

Size Pipe.....Inches	4½	5	6	7	8	9	10	12
Straight		$2.00	$2.70		$6.75		$10.00	$15.00
Eccentric		6.00	8.00		11.00		14.00	

For prices on Galvanized Fittings double above lists.

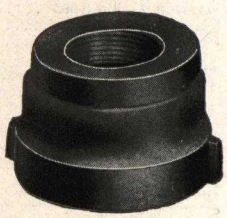


Fig. 44
Eccentric Reducer



Fig. 39—Hook Plate

Cast Iron Pipe Fittings

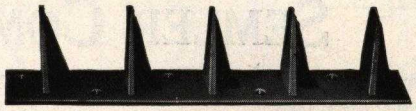


Fig. 41—Expansion Plate

Hook Plates

No. Pipes	1	2	3	4	5	6	7	8	9	10	11	12
¾-inch Pipe, 2¼-inch C. to C	$0.08	$0.16	$0.21	$0.24	$0.28	$0.34	$0.40	$0.45	$0.50	$0.56	$0.68	$0.72
1 -inch Pipe, 2½-inch C. to C	.09	.18	.23	.26	.32	.38	.48	.59	.65	.70	.85	1.00
1¼-inch Pipe, 3 -inch C. to C	.10	.21	.27	.32	.41	.52	.68	.80	.90	1.20	1.35	1.40
1½-inch Pipe, 3½-inch C. to C	.15	.28	.43	.58	.72	.88	1.10	1.25	1.40	1.55	1.65	1.90
2 -inch Pipe, 4½-inch C. to C	.22	.43	.65	.90	1.15	1.35	1.75	2.00	2.25	2.50	2.75	3.00

Expansion Plates

No. Pipes	1	2	3	4	5	6	7	8	9	10	11	12
¾-inch Pipe, 2¼-inch C. to C	$0.12	$0.23	$0.34	$0.45	$0.55	$0.65	$0.77	$0.90	$1.05	$1.25	$1.45	$1.65
1 -inch Pipe, 2½-inch C. to C	.15	.25	.35	.50	.60	.70	.80	.95	1.10	1.35	1.55	1.70
1¼-inch Pipe, 3 -inch C. to C	.17	.27	.40	.60	.70	.80	.90	1.15	1.30	1.50	1.70	2.00
1½-inch Pipe, 3½-inch C. to C	.25	.40	.60	.75	.90	1.00	1.25	1.50	1.75	2.00	2.25	2.50
2 -inch Pipe, 4½-inch C. to C	.40	.60	.85	1.00	1.35	1.55	2.00	2.45	2.75	3.10	3.60	4.25

Floor and Ceiling Plates



Fig. 37
Floor Plate

Size Pipe, Inches	½	¾	1	1¼	1½	2	2½
Floor Plates	$0.06	$0.06	$0.08	$0.11	$0.14	$0.16	$0.24
Ceiling Plates	.11	.13	.16	.18	.23	.27	.36

Size Pipe, Inches	3	3½	4	4½	5	6
Floor Plates	$0.30	$0.35	$0.42	.....	$0.60	$0.75
Ceiling Plates	.50	.55	.68	.....	.95	1.25

Double above prices for Galvanizing.

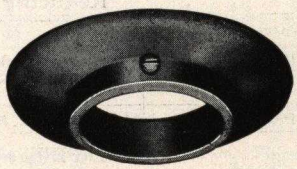


Fig. 38
Ceiling Plate

Floor Flanges

Size Pipe, Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Diameter, Flange										
2½	$0.10	$0.10	$0.10	$0.15	.....	.....	.....	.....	.....	.....
3	.10	.10	.10	.15	$0.15	.....	.....	.....	.....	.....
3½	.....	.15	.15	.15	.15	$0.16	.....	.....	.....	.....
4	.....	.22	.22	.22	.16	.16	$0.22	.....	.....	.....
4½	.....	.....	.25	.25	.25	.25	.22	.....	.....	.....
5	.....	.....	.35	.30	.30	.30	.30	$0.35	.....	.....
5½	.....	.....	.....	.....	.40	.40	.40	.35	$0.40	.....
6	.....	.....	.....	.....	.42	.40	.40	.42	.42	$0.50
6½	.....	.....	.....	.....	.....	.60	.55	.50	.50	.50
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.62

Galvanized floor flanges double above list prices. Larger sizes on application.



Fig. 32
Floor Flange

Column Plates

Size Pipe, Inches	4	4	5	5	6	6
Size Plate, Inches	6x6	6x8	8x8	8x10	8x8	8x10

Prices quoted on application.
Sizes not listed above will be furnished special.

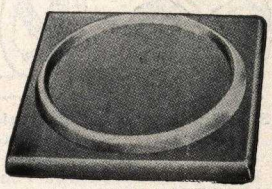


Fig. 42
Column Plate



Fig. 35
Ball Ornament
Male



Fig. 33
Square
Railing Flange



Fig. 34
Oval
Railing Flange



Fig. 36
Ball Ornament
Female

Railing Fittings

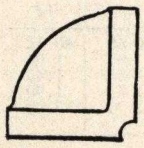
Size Pipe, Inches	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6
Square Rail Flanges	$0.14	$0.15	$0.15	$0.20	$0.28	$0.30	.....	.....	.....	.....	.....	.....	.....
Oval Flanges	.14	.18	.22	.24	.31	.44	$0.50	$0.65	$0.75	$0.90	.....	$1.70	$2.00
Ball Ornaments	.16	.18	.20	.25	.35	.90	1.00	1.50	.....	3.00	.....	.....	.....

Galvanized fittings double above list prices.

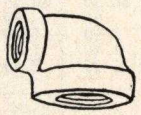
SEMLER COMPANY JEANNETTE, PA.

SEMLER Standard Cast Iron Fittings

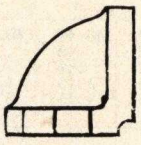
For 125 Pounds Steam Working Pressure



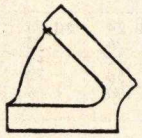
Straight Elbow
Fig. 1



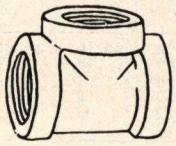
Reducing Elbow
Fig. 2



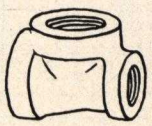
R and L Elbow
Fig. 3



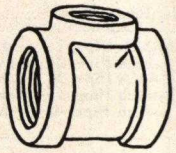
45-Degree Elbow
Fig. 4



Straight Tee
Fig. 7



Reducing on Run
Fig. 8



Reducing on Outlet
Fig. 9

Elbows, Straight Sizes—Fig. 1

Size....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Price....Each	$0.05	$0.05	$0.06	$0.08	$0.10½	$0.16	$0.20	$0.28	$0.50	$0.75

Size.....Inches	3½	4	5	6	8	10	12	14	16
Price.....Each	$1.05	$1.20	$2.00	$2.75	$6.75	$13.50	$20.00	$57.00	$80.00

Reducing Elbows—Fig. 2

Size.....Inches	⅜	½	¾	1	1¼	1½	2	2½	3
Price.....Each	$0.06	$0.07	$0.09	$0.12	$0.18	$0.23	$0.32	$0.60	$0.85

Size.....Inches	3½	4	5	6	8	10	12	14	16
Price.....Each	$1.20	$1.40	$2.30	$3.15	$7.75	$15.50	$23.00	$63.00	$80.00

Pitched Elbows—(Not Illustrated)

Tapped to pitch ¼-inch in 1 foot

Size...In.	¾	1	1¼	1½	2	2½	3	3½	4	5	6
Price..Ea.	$0.10	$0.13	$0.20	$0.25	$0.35	$0.65	$1.00	$1.30	$1.50	$3.00	$4.00

Note—The letter "P" is cast on the side of all our Elbows tapped to pitch. Sizes not listed above made to order at special net prices.

Right and Left Elbows—Fig. 3

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Price.....Each	$0.06	$0.06	$0.07	$0.09	$0.12	$0.18	$0.23	$0.32	$0.60	$0.85

Note—The ribs in the band of Right and Left Elbows denote the Left Hand Thread.

45-Degree Elbows—Fig. 4

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Price.....Each	$0.06	$0.06	$0.07	$0.10	$0.12	$0.19	$0.24	$0.34	$0.60	$0.90

Size.....Inches	3½	4	5	6	8	10	12	14	16
Price.....Each	$1.25	$1.45	$2.50	$3.45	$8.50	$17.00	$25.00	$55.00	$75.00

22½, 30 and 60-Degree Elbows—(Not Illustrated)

Size.....Inches	½	¾	1	1¼	1½	2
Price.....Each	$0.25	$0.30	$0.35	$0.45	$0.50	$0.60

Size.....Inches	2½	3	3½	4	5	6
Price.....Each	$1.10	$1.65	$2.25	$2.75	$5.00	$7.00

Tees, Straight Sizes—Fig. 7

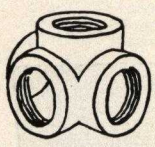
Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Price.....Each	$0.08	$0.08	$0.09	$0.12	$0.15	$0.23	$0.29	$0.41	$0.73	$1.10

Size.....Inches	3½	4	5	6	8	10	12	14	16
Price.....Each	$1.50	$1.75	$3.00	$4.00	$9.75	$19.50	$29.00	$75.00	$100.00

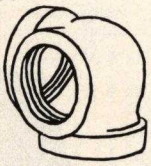
Reducing Tees—Figs. 8 and 9

Size.....Inches	⅜	½	¾	1	1¼	1½	2	2½	3	3½
Price.....Each	$0.09	$0.10	$0.14	$0.17	$0.27	$0.33	$0.47	$0.83	$1.25	$1.75

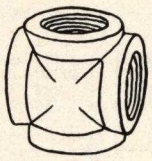
Size.....Inches	4	5	6	8	10	12	14	16
Price.....Each	$2.00	$3.50	$4.60	$11.25	$22.50	$33.50	$83.00	$110.00



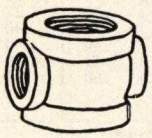
Side Outlet Tee
Fig. 5



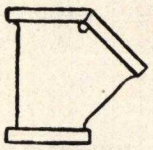
Side Outlet Elbow
Fig. 6



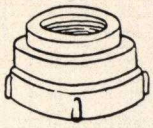
Straight Cross
Fig. 10



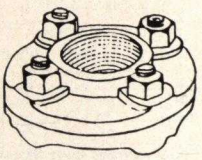
Reducing Cross
Fig. 11



Y-Branch
Fig. 37



Reducer
Fig. 39



Standard Union
Fig. 29

Side Outlet Tees, Straight Sizes—Fig. 5

Size.....Inches	½	¾	1	1¼	1½	2
Price.....Each	$ 0.27	$0.36	$0.45	$0.70	$0.90	$1.25

Size.....Inches	2½	3	3½	4	5	6
Price.....Each	$ 2.25	$ 3.25	$ 4.50	$ 5.25	$ 9.00	$12.00

Side Outlet Elbows, Straight Sizes—Fig. 6

Size.....Inches	½	¾	1	1¼	1½	2
Price.....Each	$0.18	$0.24	$0.30	$0.48	$0.60	$0.84

Size.....Inches	2½	3	3½	4	5	6
Price.....Each	$1.50	$2.25	$3.15	$3.60	$6.00	$8.25

Crosses, Straight Sizes—Fig. 10

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Price.....Each	$0.15	$0.15	$0.16	$0.22	$0.27	$0.42	$0.53	$0.75	$1.30	$2.00

Size....Inches	3½	4	5	6	8	10	12	14	16
Price....Each	$2.70	$3.15	$5.50	$7.25	$17.50	$35.00	$52.50	$110.00	$140.00

Reducing Crosses—Fig. 11

Size.....Inches	½	¾	1	1¼	1½	2	2½	3	3½
Price.....Each	$0.18	$0.25	$0.30	$0.46	$0.60	$0.83	$1.45	$2.20	$3.00

Size.....Inches	4	5	6	8	10	12	14	16
Price.....Each	$3.50	$6.00	$8.00	$19.25	$38.50	$58.00	$120.00	$150.00

Y-Branches, Straight and Reducing—Fig. 37

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Price.....Each	$0.20	$0.20	$0.20	$0.28	$0.34	$0.54	$0.66	$0.94	$1.66	$2.50
Reducing..Each	.23	.23	.23	.33	.40	.62	.76	1.08	1.90	2.90

Size...Inches	3½	4	5	6	8	10	12	14	16
Price...Each	$3.50	$4.00	$7.00	$ 9.20	$22.50	$45.00	$67.00	$135.00	$175.00
Reducing..Ea.	4.00	4.60	8.00	10.60	26.00	51.75	77.00	150.00	200.00

Reducers, Straight and Eccentric—Fig. 39

Size.....Inches	½	¾	1	1¼	1½	2	2½	3
Price, Straight.....Each	$0.10	$0.10	$0.16	$0.22	$0.28	$0.43	$0.60	$0.80
Price, Eccentric.....Each	.....	.....	.55	.55	.72	1.00	1.50	2.40

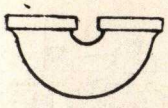
Size.....Inches	3½	4	5	6	8	10	12
Price, Straight.....Each	$1.00	$1.35	$2.00	$2.70	$ 6.75	10.00	$15.00
Price, Eccentric.....Each	3.00	4.00	6.00	8.00	11.00	14.00	18.00

Standard Flange Unions, Black and Galvanized—Fig. 29

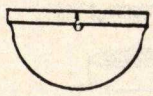
Size.....Inches	½	¾	1	1¼	1½	2	2½	3	3½	4
Price.....Each	$0.40	$0.46	$0.52	$0.64	$0.78	$1.00	$1.25	$1.50	$1.80	$2.10
Price, Galv..Ea.	.80	.92	1.04	1.28	1.56	2.00	2.50	3.00	3.60	4.20

Size.....Inches	5	6	8	10	12	14	16
Price.....Each	$3.15	$3.95	$ 7.00	$11.50	$16.00	$28.00	$ 60.00
Price, Galvanized.....Each	6.30	7.90	14.00	23.00	32.00	56.00	120.00

SEMLER Cast Iron Fittings

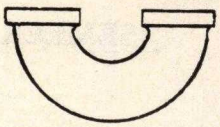


Open Pattern
Fig. 43

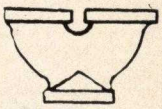


Close Pattern
Fig. 42

Return Bends



Special Wide Pattern
Fig. 41



Back Outlet
Open Pattern
Fig. 46

Close Pattern—Fig. 42

Size.....Inches	⅜	½	¾	1	1¼	1½	2	2½	3	4
Price, Right Hand....Each	.17	.18	.20	.22	.28	.40	.57	1.20	1.70	5.00
Price, Right and Left..Each	.20	.21	.23	.26	.33	.46	.66	1.40	1.95	5.25
Price, Left Hand.....Each	.20	.21	.23	.26	.33	.46	.66	1.40	1.95	5.25
Price, Right Hand, Pitched.....Each	....	....	.23	.26	.33	....	....	....	....	....
Price, Right and Left or Left Hand, Pitched..Each	....	....	.23	.26	.33	....	....	....	....	....
Center to Center....Inches	1⅛	1¼	1½	1¾	2¼	2½	3¼	3⅝	4⅜	6

Right and Left and Left Hand Pitched Return Bends are made ot order.

Open Pattern—Fig. 43

Size.....Inches	½	¾	1	1¼	1½	2	2½	3	4
Price, Right Hand.....Each	.25	.26	.30	.40	.55	.80	1.35	2.20	6.50
Price, Right and Left.....Each	.30	.30	.35	.46	.64	.92	1.55	2.50	7.00
Price, Left Hand.....Each	.30	.30	.35	.46	.64	.92	1.55	2.50	7.00
Center to Center.....Inches	1¾	2¼	2½	3	3½	4½	5⅜	6½	7½

Special Wide Pattern—Fig. 41

Size.....Inches	1	1	1¼	1¼
Price, Black.....Each	$0.50	$0.60	$1.00	$1.25
Price, Galvanized.....Each	.90	1.10	1.75	2.00
Center to Center.....Inches	4	5	4	6
Size.....Inches	1½	1½	2	
Price, Black.....Each	$1.60	$2.00	$2.00	
Price, Galvanized.....Each	2.60	3.25	3.25	
Center to Center.....Inches	6	8	6	

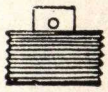
Return Bends not listed will be furnished at special net prices.

Back Outlet—Open Pattern—Fig. 46

Size.....Inches	¾	1	1¼	1½	2	2½	3
Price, Right Hand....Each	$0.38	$0.42	$0.60	$0.80	$1.15	$2.00	$3.00
Price, Right and Left..Each	.42	.48	.70	.95	1.30	2.30	3.50
Center to Center....Inches	2¼	2½	3	3½	4½	5⅜	6½

Back Outlet—Close Pattern—Fig. 47

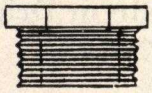
Size.....Inches	¾	1	1¼	1½	2	2½	3
Price, Right Hand....Each	$0.38	$0.42	$0.60	$0.80	$1.15	$2.00	$3.00
Price, Right and Left..Each	.42	.48	.70	.95	1.30	2.30	3.50
Center to Center....Inches	1½	1¾	2¼	2½	3¼	3⅝	4⅜



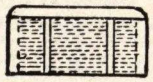
Plug
Fig. 21



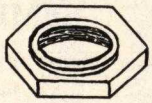
Countersunk Plug
Fig. 23



Bushing
Fig. 25



Cap
Fig. 27



Locknut
Fig. 22



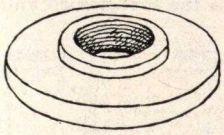
Ceiling Plate
Fig. 26



Floor Flange
Fig. 28

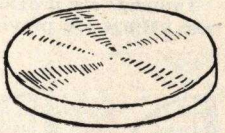
Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12	14	16
Plugs																				
Regular—Fig. 21.....Each	$0.02	$0.02	$0.02	$0.02	$0.03	$0.04	$0.05	$0.07	$0.10	$0.18	$0.25	$0.38	$0.42	$0.88	$1.20	$2.75	$3.75	$5.00	$12.50	$20.00
Solid.....Each		.04	.04	.04	.06	.08	.09	.11	.15	.27	.38	.57	.63	1.35	1.80	4.15	5.75	7.50	18.75	30.00
Countersunk, Fig. 23.....Each				.04	.06	.08	.09	.11	.15	.30	.40	.92	1.10	2.00	3.50					
Left Hand.....Each				.04	.06	.08	.09	.11	.15											
Tapped for Air Cock.....Each					.12	.15	.20	.25	.30											
Bushings—Fig. 25.....Each			.04	.04	.05	.06	.07	.09	.14	.21	.30	.40	.50	.93	1.25	2.75	3.75	5.00	12.50	22.00
Caps—Fig. 27.....Each			.03	.03	.05	.08	.14	.20	.26	.40	.54	.75	.87	1.20	1.55	2.85	5.50	7.00	19.00	25.00
Locknuts—Fig. 22.....Each									.25	.27	.34	.47	.64	.90	1.30	2.35	3.00	4.00		
Ceiling Plates—Fig. 26.....Each				.11	.13	.16	.18	.23	.27	.36	.50	.55	.68	.95	1.25	2.50	3.00			
*Floor Flanges—Fig. 28....Each		.14	.14	.17	.18	.22	.25	.31	.45	.65	1.00		1.50							

*Prices for standard sizes, others on application.



Cast Iron Flanges

Standard and Extra Heavy



Standard Flanges

Sizes.....Inches	1	1¼	1½	2	2½	3
Diameter.....Inches	4¼	4⅝	5	6	7	7½
Companion, Faced.....Each	$0.55	$0.60	$0.65	$0.75	$0.85	$0.95
Companion, Faced & Drilled..Each	.80	.85	.90	1.00	1.10	1.25
Blind, Faced.....Each	.85	.90	1.00	1.15	1.30	1.40
Blind, Faced and Drilled.....Each	1.10	1.15	1.25	1.40	1.55	1.70
Sizes.....Inches	3½	4	5	6	8	10
Diameter.....Inches	8½	9	10	11	13½	16
Companion, Faced.....Each	$1.20	$1.35	$1.60	$2.00	$3.10	$4.50
Companion, Faced & Drilled..Each	1.55	1.80	2.05	2.50	3.80	5.50
Blind, Faced.....Each	1.80	2.00	2.40	3.00	4.60	6.75
Blind, Faced and Drilled.....Each	2.15	2.45	2.85	3.50	5.30	7.75
Sizes.....Inches	12	14	16	18	20	24
Diameter.....Inches	19	21	23½	25	27½	32
Companion, Faced.....Each	$ 6.50	$ 9.00	$13.50	$16.00	$19.00	$27.00
Companion, Faced & Drilled..Each	7.65	10.35	15.30	18.00	21.50	30.50
Blind, Faced.....Each	9.75	13.50	20.00	24.00	28.00	40.00
Blind, Faced and Drilled.....Each	10.90	14.85	21.80	26.00	30.50	43.50

When not otherwise specified, these Flanges will be furnished Faced and Drilled.

Reducing Standard Flange List

Size O. D.....Inches	6	7	7½	8½	9	10	11
Faced.....Each	$1.30	$1.45	$1.55	$2.00	$2.20	$2.65	$3.30
Faced and DrilledEach	1.55	1.70	1.85	2.35	2.65	3.10	3.80
Size O. D.....Inches	13½	16	19	21	23½	25	27½	32
Faced.....Each	$5.10	$7.45	$10.75	15.00	22.00	$26.50	$31.00	$44.00
Faced and DrilledEach	5.80	8.45	11.90	16.35	23.80	28.50	33.50	47.50

Extra Heavy Flanges

Sizes.....Inches	1	1¼	1½	2	2½	3
Diameter.....Inches	4⅞	5¼	6⅛	6½	7½	8¼
Companion, Faced.....Each	$0.95	$1.00	$1.10	$1.25	$1.40	$1.60
Companion, Faced & Drilled..Each	1.30	1.35	1.45	1.60	1.75	2.05
Blind, Faced.....Each	1.45	1.50	1.65	1.90	2.10	2.40
Blind, Faced and Drilled.....Each	1.80	1.85	2.00	2.25	2.45	2.85
Sizes.....Inches	3½	4	5	6	8	10
Diameter.....Inches	9	10	11	12½	15	17½
Companion, Faced.....Each	$ 2.00	$ 2.25	$ 2.65	$ 3.30	$ 5.10	$ 7.40
Companion, Faced & Drilled..Each	2.55	2.95	3.35	4.05	6.15	8.90
Blind, Faced.....Each	3.00	3.35	4.00	5.00	7.65	11.00
Blind, Faced and Drilled.....Each	3.55	4.05	4.70	5.75	8.70	12.50
Sizes.....Inches	12	14	16	18	20	24
Diameter.....Inches	20½	23	25½	28	30½	36
Companion, Faced.....Each	$10.75	$15.00	$22.25	$26.00	$31.00	$45.00
Companion, Faced & Drilled..Each	12.50	17.00	25.00	29.00	35.00	50.00
Blind, Faced.....Each	16.00	22.50	33.50	39.00	46.00	67.00
Blind, Faced and Drilled.....Each	17.75	24.50	36.25	42.00	50.00	72.00

When not otherwise specified, these Flanges will be furnished Faced and Drilled. Flanges with Tongue and Groove are made to order at special prices.

Reducing Extra Heavy Flange List

Size O. D.....Inches	6⅛	6½	7½	8¼	9	10	11	12½
Faced.....Each	$1.80	$2.10	$2.30	$2.65	$3.30	$3.70	$4.40	$5.50
Faced and Drilled.....Each	2.15	2.45	2.65	3.10	3.85	4.40	5.10	6.25
Size O. D.....Inches	15	17½	20½	23	25½	28	30½	36
Faced.....Each	$8.40	12.00	17.50	25.00	37.00	43.00	51.00	74.00
Faced and Drilled.....Each	9.45	13.50	19.25	27.00	39.75	46.00	55.00	79.00

SEMLER Extra Heavy Cast Iron Fittings

For 250 Pounds Steam Working Pressure

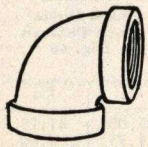


Fig. 12—Elbow



Fig. 13—45° Elbow

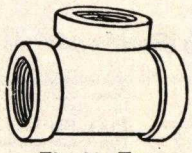


Fig. 14—Tee

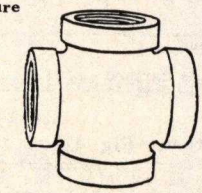
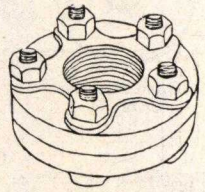


Fig. 15—Cross

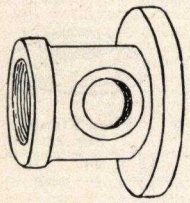


Extra Heavy Union
Fig. 30

Size.....Inches	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12
Price, Elbow.....Each	$0.25	$0.30	$0.35	$0.45	$0.60	$0.75	$1.25	$2.00	$2.75	$3.50	$5.50	$8.00	$17.00	$28.00	$40.00
Price, Elbows, Reducing..Each	.35	.40	.45	.55	.75	.95	1.55	2.50	3.40	4.40	6.80	10.00	21.00	35.00	50.00
Price, Elbows, 45-Degree..Each	.35	.40	.44	.55	.70	.90	1.50	2.50	3.50	4.50	6.75	9.75	21.00	34.00	48.00
Price, Tees.....Each	.40	.45	.55	.70	.90	1.15	1.80	3.00	4.25	5.50	8.25	12.00	25.00	42.00	60.00
Price, Tees, Reducing....Each	.55	.60	.70	.90	1.15	1.40	2.25	3.75	5.30	6.85	10.25	15.00	31.00	52.00	75.00
Price, Crosses.....Each	.60	.65	.70	.90	1.20	1.50	2.50	4.00	5.50	7.00	11.00	16.00	34.00	56.00	80.00
Price, Crosses, Reducing..Each	.80	.85	.90	1.15	1.50	1.85	3.15	5.00	6.85	8.75	13.75	20.00	42.00	70.00	100.00
Price, Ys.....Each	.90	1.10	1.10	1.35	1.80	2.25	3.75	6.00	8.25	11.00	16.50	24.00	50.00	84.00	120.00
Price, Ys, Reducing.....Each	.....	.....	1.38	1.75	2.25	2.88	4.50	7.50	10.63	13.75	20.63	30.00	62.50	105.00	150.00
Price, Reducers.....Each	.28	.33	.39	.50	.66	.83	1.38	2.20	3.05	3.85	6.00	8.80	18.75	31.00	44.00
Price, Plugs.....Each	.04	.06	.08	.09	.11	.15	.27	.38	.57	.63	1.35	1.80	4.15	5.75	7.50

Extra Heavy Flange Unions

Size.....Inches	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12
Price.....Each	$0.60	$0.70	$0.80	$1.00	$1.15	$1.50	$1.90	$2.25	$2.70	$3.15	$4.75	$6.00	$10.50	$17.25	$24.00



SEMLER Cast Iron Drain or Drip Tees

For 150 Pounds Water Working Pressure

Size.....Inches	2	2½	3	3½	4	5	6	8	10	12
Price, Faced, Flange 1 End.....Each	$1.67	$2.23	$2.85	$3.55	$4.15	$ 6.30	$ 7.80	$16.25	$30.25	$44.00
Price, Faced and Drilled, Flange 1 End..Each	1.97	2.83	3.50	4.25	5.00	7.15	8.60	17.75	31.75	46.00
Price, Faced, Flanges 2 Ends.....Each	2.87	3.63	4.45	5.35	6.30	9.10	11.00	21.25	38.00	54.50
Price, Faced and Drilled, Flanges 2 Ends..Each	3.47	4.83	5.75	6.75	8.00	10.80	12.60	24.25	41.00	58.50

In these Reducing Drain or Drip Tees the list price is determined by the largest opening.

SEMLER American Standard Sprinkler Fittings

For Water Working Pressures Up to 150 Pounds

Fittings are guaranteed for water working pressures up to 150 pounds and are marked Semler W-150 and SU; W denoting water and SU their suitability for fire protection service.

All of these fittings are made of high grade cast iron. The sizes range from 2½ to 8 inches.

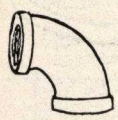
Screwed, flanged and combination screwed and flanged fittings all have the same center to end dimensions for each respective size. When one end is flanged the large opening will be flanged unless otherwise specified.

Tappings are provided only for drain or test purposes. In this case fittings are provided with bosses for tapping when required if the location and size of tappings are specified. Slip bosses having blind holes will be provided when required to act as sockets for supports. Fittings 2½ to 6 inches inclusive may be tapped ½-inch on the side without boss and fittings larger than 6 inches may be tapped ¾ inch without boss.

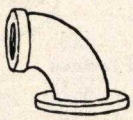
The Semler Company's line of American Standard Sprinkler Fittings are recommended for the water working pressure of 150 pounds. All screwed fittings have the American Briggs Standard Thread, eight threads per inch.

In describing Tees and Crosses the run is the first named and then the outlet or outlets.

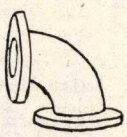
W-150
SU



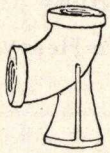
Style 1
Fig. 264



Style 2
Fig. 265



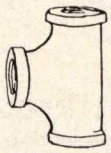
Style 3
Fig. 266



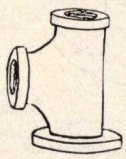
Style 4
Fig. 267



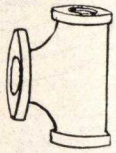
Style 5
Fig. 268



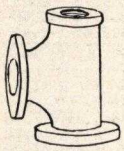
Style 6
Fig. 269



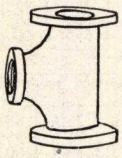
Style 7
Fig. 270



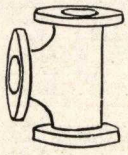
Style 8
Fig. 271



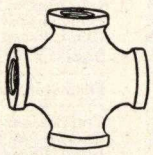
Style 9
Fig. 272



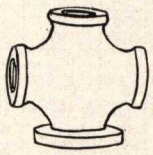
Style 10
Fig. 273



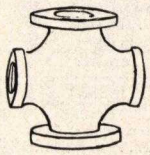
Style 11
Fig. 274



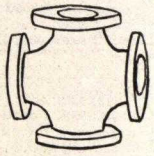
Style 12
Fig. 275



Style 13
Fig. 276



Style 14
Fig. 277



Style 15
Fig. 278

Size.....Inches	2½	3	3½	4	5	6	8
Style 1—90° Elbows, Screwed.....Each	$ 1.20	$ 2.25	$ 3.25	$ 3.50	$ 6.50	$ 8.75	$17.00
Style 2—90° Elbows, Screwed and Flanged.....Each	5.50	6.00	6.50	7.50	10.00	14.00	30.00
Style 3—90° Elbows, Flanged.....Each	6.75	7.50	8.50	10.00	12.50	17.50	35.00
Style 4—Base 90° Elbows, Screwed.....Each	.....	8.00	.....	11.00	15.00	18.00	.....
Style 5—Base Elbows, Flanged.....Each	.....	8.00	.....	11.00	15.00	18.00	.....
45° Elbows, Flanged and Screwed (not illustrated).....Each	1.70	2.15	2.80	3.25	4.55	5.95	12.30
Style 6—Tees, Screwed.....Each	2.40	4.50	6.50	7.00	13.00	17.50	34.00
Style 6—Tees, Reducing, Screwed.....Each	3.60	6.75	9.75	10.50	19.50	26.25	51.00
Style 7—Tees, Screwed and Flanged.....Each	9.00	10.00	11.00	12.00	15.00	22.00	45.00
Style 8—Tees, Screwed and Flanged.....Each	9.00	10.00	11.00	12.00	15.00	22.00	45.00
Style 9—Tees, Screwed and Flanged.....Each	9.00	10.00	11.00	12.00	15.00	22.00	45.00
Style 10—Tees, Screwed and Flanged.....Each	9.00	10.00	11.00	12.00	15.00	22.00	45.00
Style 11—Tees, Flanged.....Each	10.00	11.50	13.00	15.00	18.00	26.00	50.00
Style 12—Crosses, Screwed.....Each	3.20	6.00	8.75	9.50	17.50	24.00	45.00
Style 13—Crosses, Screwed and Flanged.....Each	12.50	13.50	15.00	17.00	22.00	30.00	65.00
Style 14—Crosses, Screwed and Flanged.....Each	12.50	13.50	15.00	17.00	22.00	30.00	65.00
Style 15—Crosses, Flanged.....Each	13.50	15.00	17.00	20.00	25.00	35.00	70.00

SEMLER Standard Cast Iron Flanged Fittings

For 125 Pounds Steam Working Pressure

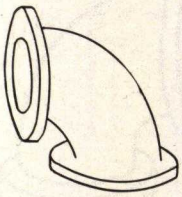


Fig. 67—90° Elbow

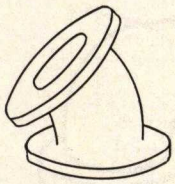


Fig. 68—45° Elbow

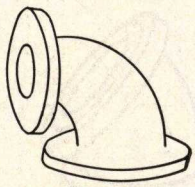


Fig. 69
Reducing Elbow

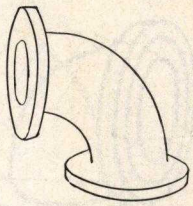


Fig. 70
Long Radius Elbow

Elbows—90°			Elbows—45°			Taper Reducing Elbows						Long Radius Elbows		
Size Inches	With Flanges Faced	With Flanges Faced and Drilled	Size Inches	With Flanges Faced	With Flanges Faced and Drilled	Size Inches	With Flanges Faced	With Flanges Faced and Drilled	Size Inches	With Flanges Faced	With Flanges Faced and Drilled	Size Inches	With Flanges Faced	With Flanges Faced and Drilled
2	$3.00	$3.60	2	$3.30	$ 3.90	2 x1½	$ 6.90	$ 7.60	6x 5	$15.25	$16.55	2	$ 5.00	$ 5.90
2½	3.15	3.75	2½	3.50	4.10	3 x2	6.90	7.60	8x 3½	24.00	25.60	2½	5.25	6.15
3	3.45	4.15	3	3.80	4.50	3 x2½	6.90	7.60	8x 4	24.00	25.60	3	5.75	6.85
3½	4.05	4.90	3½	4.50	5.35	3½x2½	8.10	8.95	8x 5	24.00	25.60	3½	6.75	8.00
4	4.50	5.50	4	5.00	6.00	3½x3	8.10	8.95	8x 6	24.00	25.60	4	7.50	9.00
5	6.25	7.25	5	6.90	7.90	4 x2	9.00	10.00	10x 5	38.00	40.70	5	10.50	12.00
6	7.60	8.90	6	8.35	9.65	4 x2½	9.00	10.00	10x 6	38.00	40.70	6	12.65	14.60
8	12.00	13.60	8	12.60	14.20	4 x3	9.00	10.00	10x 8	38.00	40.70	8	20.00	22.40
10	19.00	21.70	10	20.00	22.70	5 x2½	12.50	13.50	12x 6	56.00	59.00	10	31.50	35.50
12	28.00	31.00	12	29.50	32.50	5 x3	12.50	13.50	12x 8	56.00	59.00	12	46.50	51.00
14	41.50	45.25	14	41.50	45.25	5 x4	12.50	13.50	12x10	56.00	59.00	14	69.00	74.50
16	54.50	59.50	16	54.50	59.50	6 x2½	15.25	16.55	14x10	70.00	73.75	16	91.00	98.50
18	71.00	77.00	18	71.00	77.00	6 x3	15.25	16.55	14x12	70.00	73.75	18	118.00	127.00
20	90.00	97.00	20	90.00	97.00	6 x3½	15.25	16.55	16x12	90.00	95.00	20	150.00	160.00
24	140.00	150.00	24	140.00	150.00	6 x4	15.25	16.55	16x14	90.00	95.00	.....	.....	.....

When not otherwise specified, Flanged Fittings will be furnished Faced and Drilled.

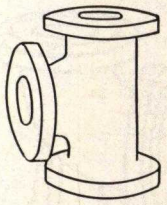


Fig. 78—Tee

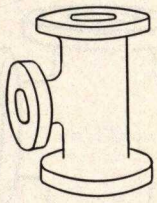


Fig. 79—Tee Reducing on Side

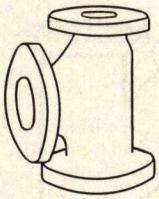


Fig. 80—Tee Reducing on End

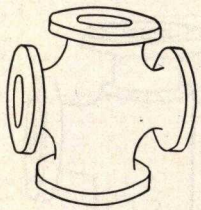


Fig. 85—Cross

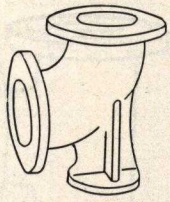


Fig. 71—Base Elbow Round or Square Base

Size Inches	Tees				Laterals				Crosses				Base Elbows	
	Straight		Reducing		Straight		Reducing		Straight		Reducing			
	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled Except Base Flg.
2	$ 4.35	$ 5.25	$ 5.00	$ 5.90	$ 6.75	$ 7.95	$ 7.75	$ 8.95	$ 6.75	$ 7.95	$ 7.75	$ 8.95	.....	.....
2½	4.55	5.45	5.25	6.15	6.95	8.15	8.00	9.20	6.95	8.15	8.00	9.20	.....	.....
3	5.00	6.10	5.75	6.85	7.65	9.05	8.75	10.15	7.65	9.05	8.75	10.15	.....	.....
3½	5.85	7.10	6.75	8.00	9.00	10.70	10.35	12.05	9.00	10.70	10.35	12.05	.....	.....
4	6.50	8.00	7.50	9.00	10.00	12.00	11.50	13.50	10.00	12.00	11.50	13.50	$ 9.00	$10.00
5	9.10	10.60	10.50	12.00	13.75	15.75	15.75	17.75	13.75	15.75	15.75	17.75	12.50	13.50
6	11.00	12.95	12.65	14.60	16.75	19.25	19.25	21.75	16.75	19.25	19.25	21.75	15.25	16.55
8	17.40	19.80	20.00	22.40	26.50	29.75	30.50	33.75	26.50	29.75	30.50	33.75	24.00	25.60
10	27.50	31.50	31.50	35.50	42.00	47.50	48.00	53.50	42.00	47.50	48.00	53.50	38.00	40.70
12	40.50	45.00	46.50	51.00	61.50	67.50	71.00	77.00	61.50	67.50	71.00	77.00	56.00	59.00
14	60.00	65.50	69.00	74.50	91.00	98.50	105.00	112.50	91.00	98.50	105.00	112.50	70.00	73.75
16	79.00	86.50	91.00	98.50	120.00	130.00	138.00	148.00	120.00	130.00	138.00	148.00	90.00	95.00
18	103.00	112.00	118.00	127.00	157.00	169.00	180.00	192.00	157.00	169.00	180.00	192.00	105.00	111.00
20	130.00	140.00	150.00	160.00	198.00	212.00	228.00	242.00	198.00	212.00	228.00	242.00	.....	.....
24	203.00	218.00	233.00	248.00	310.00	330.00	355.00	375.00	310.00	330.00	355.00	375.00	.....	.....

Taper Reducers

Size Inches	With Flanges Faced	With Flanges Faced and Drilled	Size Inches	With Flanges Faced	With Flanges Faced and Drilled	Size Inches	With Flanges Faced	With Flanges Faced and Drilled	Size Inches	With Flanges Faced	With Flanges Faced and Drilled	Size Inches	With Flanges Faced	With Flanges Faced and Drilled
2½x2	$ 6.90	$ 7.60	5x3	$12.50	$13.50	8x 5	$24.00	$25.60	14x 6	$70.00	$73.75	18x14	$105.00	$111.00
3 x2	6.90	7.60	5x3½	12.50	13.50	8x 6	24.00	25.60	14x 8	70.00	73.75	18x16	105.00	111.00
3½x2½	8.10	8.95	5x4	12.50	13.50	10x 4	38.00	40.70	14x10	70.00	73.75	20x12	120.00	127.00
3½x3	8.10	8.95	6x3	15.25	16.55	10x 5	38.00	40.70	14x12	70.00	73.75	20x14	120.00	127.00
4 x2	9.00	10.00	6x3½	15.25	16.55	10x 6	38.00	40.70	16x 8	90.00	95.00	20x16	120.00	127.00
4 x2½	9.00	10.00	6x4	15.25	16.55	10x 8	38.00	40.70	16x10	90.00	95.00	20x18	120.00	127.00
4 x3	9.00	10.00	6x5	15.25	16.55	12x 5	56.00	59.00	16x12	90.00	95.00	24x16	190.00	200.00
4 x3½	9.00	10.00	8x3	24.00	25.60	12x 6	56.00	59.00	16x14	90.00	95.00	24x18	190.00	200.00
5 x2	12.50	13.50	8x3½	24.00	25.60	12x 8	56.00	59.00	18x10	105.00	111.00	24x20	190.00	200.00
5 x2½	12.50	13.50	8x4	24.00	25.60	12x10	56.00	59.00	18x12	105.00	111.00	.....	.....	.....

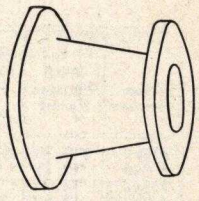


Fig. 88—Flanged Taper Reducer

SEMLER Extra Heavy Cast Iron Flanged Fittings

For 250 Pounds Steam Working Pressure

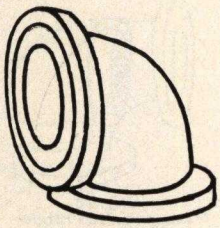


Fig. 90—90° Elbow

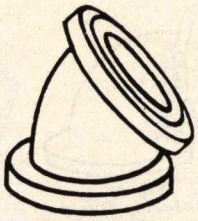


Fig. 91—45° Elbow

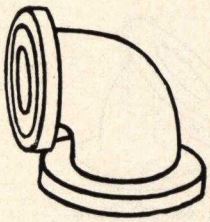


Fig. 92—Reducing Taper Elbow

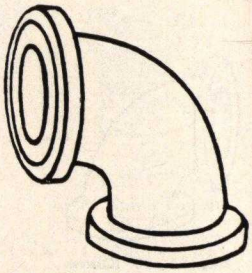


Fig 93—Long Radius Elbow

Elbows—90°			Elbows—45°			Taper Reducing Elbows						Long Radius Elbows		
Size Inches	With Flanges Faced	With Flanges Faced and Drilled	Size Inches	With Flanges Faced	With Flanges Faced and Drilled	Size Inches	With Flanges Faced	With Flanges Faced and Drilled	Size Inches	With Flanges Faced	With Flanges Faced and Drilled	Size Inches	With Flanges Faced	With Flanges Faced and Drilled
2	$ 4.50	$ 5.40	2	$ 5.00	$ 5.90	2 x1½	$ 9.00	$ 9.90	6x 4	$22.75	$24.75	2	$ 7.50	$ 8.85
2½	4.75	5.65	2½	5.25	6.15	2½x1½	9.50	10.40	6x 5	22.75	24.75	2½	8.00	9.35
3	5.15	6.25	3	5.65	6.75	2½x2	9.50	10.40	8x 4	36.00	38.50	3	8.60	10.25
3½	6.10	7.35	3½	6.75	8.00	3 x1½	10.25	11.35	8x 5	36.00	38.50	3½	10.25	12.15
4	6.75	8.25	4	7.50	9.00	3 x2	10.25	11.35	8x 6	36.00	38.50	4	11.25	13.50
5	9.35	10.85	5	10.35	11.85	3 x2½	10.25	11.35	10x 5	57.00	61.00	5	15.50	17.75
6	11.40	13.40	6	12.50	14.50	3½x2½	12.25	13.50	10x 6	57.00	61.00	6	19.00	22.00
8	18.00	20.50	8	19.00	21.50	3½x3	12.25	13.50	10x 8	57.00	61.00	8	30.00	33.75
10	28.50	32.50	10	30.00	34.00	4 x2	13.50	15.00	12x 8	84.00	88.50	10	47.75	53.75
12	42.00	46.50	12	44.00	48.50	4 x2½	13.50	15.00	12x10	84.00	88.50	12	70.00	76.75
14	62.00	67.50	14	62.00	67.50	4 x3	13.50	15.00	14x10	105.00	110.50	14	103.50	111.75
16	82.00	90.00	16	82.00	90.00	5 x2½	18.75	20.25	14x12	105.00	110.50	16	137.00	149.00
18	106.00	115.00	18	106.00	115.00	5 x3	18.75	20.25	16x10	135.00	143.00	18	177.00	191.00
20	135.00	145.00	20	135.00	145.00	5 x4	18.75	20.25	16x12	135.00	143.00	20	225.00	240.00
24	210.00	225.00	24	210.00	225.00	6 x3	22.75	24.75	16x14	135.00	143.00	.....	.....	.....
.....	.....	.....	.....	.....	.....	6 x3½	22.75	24.75	.....	.....	.....	.....	.....	.....

When not otherwise specified, Flanged Fittings will be furnished Faced and Drilled.

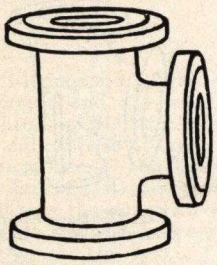


Fig. 99—Tee

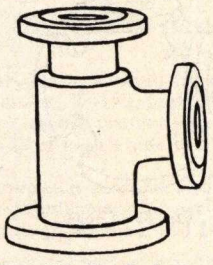


Fig. 100—Tee Reducing

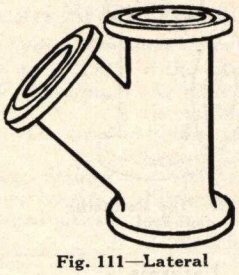


Fig. 111—Lateral

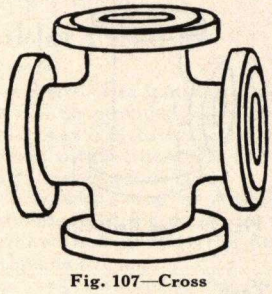


Fig. 107—Cross

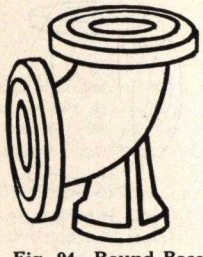


Fig. 94—Round Base Elbow

Size Inches	Tees				Laterals				Crosses				Base Elbows	
	Straight		Reducing		Straight		Reducing		Straight		Reducing			
	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled	With Flanges Faced	With Flanges Faced and Drilled Except Base Flg.
2	$ 6.50	$ 7.85	$ 7.50	$ 8.85	$10.00	$11.80	.....	.....	$10.00	$11.80	$11.50	$13.30	.....	.....
2½	6.90	8.25	8.00	9.35	10.50	12.30	$12.00	$13.80	10.50	12.30	12.00	13.80	.....	.....
3	7.50	9.15	8.60	10.25	11.50	13.75	13.25	15.50	11.50	13.75	13.25	15.50	.....	.....
3½	8.90	10.80	10.25	12.15	13.50	16.00	15.50	18.00	13.50	16.00	15.50	18.00	.....	.....
4	9.75	12.00	11.25	13.50	15.00	18.00	17.00	20.00	15.00	18.00	17.00	20.00	$13.50	$15.00
5	13.50	15.75	15.50	17.75	20.50	23.50	23.50	26.50	20.50	23.50	23.50	26.50	18.75	20.25
6	16.50	19.50	19.00	22.00	25.00	29.00	29.00	33.00	25.00	29.00	29.00	33.00	22.75	24.75
8	26.00	29.75	30.00	33.75	40.00	45.00	46.00	51.00	40.00	45.00	46.00	51.00	36.00	38.50
10	41.50	47.50	47.75	53.75	63.00	71.00	72.00	80.00	63.00	71.00	72.00	80.00	57.00	61.00
12	61.00	67.75	70.00	76.75	92.00	101.00	106.00	115.00	92.00	101.00	106.00	115.00	84.00	88.50
14	90.00	98.25	103.50	111.75	136.00	147.00	158.00	169.00	136.00	147.00	158.00	169.00	105.00	110.50
16	119.00	131.00	137.00	149.00	180.00	196.00	207.00	223.00	180.00	196.00	207.00	223.00	135.00	143.00
18	154.00	168.00	177.00	191.00	235.00	253.00	270.00	288.00	235.00	253.00	270.00	288.00	.....	.....
20	195.00	210.00	225.00	240.00	300.00	320.00	345.00	365.00	300.00	320.00	345.00	365.00	.....	.....
24	305.00	328.00	350.00	373.00	465.00	495.00	535.00	565.00	465.00	495.00	535.00	565.00	.....	.....

Taper Reducers

Size Inches	With Flanges Faced	With Flanges Faced and Drilled	Size Inches	With Flanges Faced	With Flanges Faced and Drilled	Size Inches	With Flanges Faced	With Flanges Faced and Drilled	Size Inches	With Flanges Faced	With Flanges Faced and Drilled	Size Inches	With Flanges Faced	With Flanges Faced and Drilled
2½x2	$ 9.50	$10.40	5x4	$18.75	$20.25	10x 4	$57.00	$61.00	14x 8	$105.00	$110.50	18x14	$157.00	$166.00
3 x2	10.25	11.35	6x3	22.75	24.75	10x 5	57.00	61.00	14x10	105.00	110.50	18x16	157.00	166.00
3½x2½	12.25	13.50	6x3½	22.75	24.75	10x 6	57.00	61.00	14x12	105.00	110.50	20x12	180.00	190.00
4 x2	13.50	15.00	6x4	22.75	24.75	10x 8	57.00	61.00	16x 8	135.00	143.00	20x14	180.00	190.00
4 x2½	13.50	15.00	6x5	22.75	24.75	12x 5	84.00	88.50	16x10	135.00	143.00	20x16	189.00	190.00
4 x3	13.50	15.00	8x3	36.00	38.50	12x 6	84.00	88.50	16x12	135.00	143.00	20x18	180.00	190.00
5 x2	18.75	20.25	8x4	36.00	38.50	12x 8	84.00	88.50	16x14	135.00	143.00	24x16	285.00	300.00
5 x2½	18.75	20.25	8x5	36.00	38.50	12x10	84.00	88.50	18x10	157.00	166.00	24x18	285.00	300.00
5 x3	18.75	20.25	8x6	36.00	38.50	14x 6	105.00	110.50	18x12	157.00	166.00	24x20	285.00	300.00

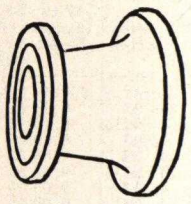


Fig. 113—Taper Reducer

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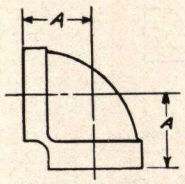


Fig. 114
90° Short Turn Elbows

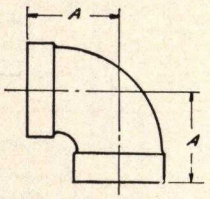


Fig. 115
90° Long Turn Elbows

90-Degree Short and Long Turn Elbows—Figs. 114 and 115

Size ..... Inches	1¼	1½	2	2½	3
Fig. 114—Dimension A ..... Inches	1¾	2 3/16	2 3/8	2 13/16	3 3/16
Fig. 115—Dimension A ..... Inches	1¾	2½	3 1/16	3 11/16	4¼
Fig. 114—Black ..... Each	$0.30	$0.38	$0.57	$1.20	$1.45
Galvanized ..... Each	.52	.67	1.00	2.10	2.55
Fig. 115—Black ..... Each	.35	.42	.65	1.40	1.75
Galvanized ..... Each	.60	.72	1.15	2.45	3.10

Size ..... Inches	4	5	6	8	10
Fig. 114—Dimension A ..... Inches	3 13/16	4½	5 5/16	6½	7¾
Fig. 115—Dimension A ..... Inches	5 5/16	6⅛	7⅛	9	11
Fig. 114—Black ..... Each	$2.30	$4.25	$ 6.25	$15.00	$31.00
Galvanized ..... Each	4.00	7.40	11.00	26.25	54.00
Fig. 115—Black ..... Each	2.75	5.25	7.50	19.00	38.00
Galvanized ..... Each	4.80	9.20	13.15	33.25	66.50

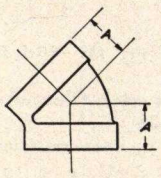


Fig. 119
45° Short Turn Elbows

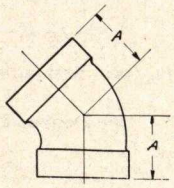


Fig. 120
45° Long Turn Elbows

45-Degree Short and Long Turn Elbows—Figs. 119 and 120

Size ..... Inches	1¼	1½	2	2½	3
Fig. 119—Dimension A ..... Inches	1 3/8	1 7/16	1¾	2 1/16	2 3/8
Fig. 120—Dimension A ..... Inches	1¾	1⅞	2¼	2 5/8	2⅞
Fig. 119—Black ..... Each	$0.30	$0.38	$0.57	$1.20	$1.45
Galvanized ..... Each	.52	.67	1.00	2.10	2.55
Fig. 120—Black ..... Each	.35	.42	.65	1.40	1.75
Galvanized ..... Each	.60	.72	1.15	2.45	3.10

Size ..... Inches	4	5	6	8	10
Fig. 119—Dimension A ..... Inches	2¾	3 3/16	3½	4 3/16	4⅞
Fig. 120—Dimension A ..... Inches	3 7/16	4⅛	4⅞	6	7½
Fig. 119—Black ..... Each	$2.30	$4.25	$ 6.25	$15.00	$31.00
Galvanized ..... Each	4.00	7.40	11.00	26.25	54.00
Fig. 120—Black ..... Each	2.75	5.25	7.50	19.00	38.00
Galvanized ..... Each	4.80	9.20	13.15	33.25	66.50

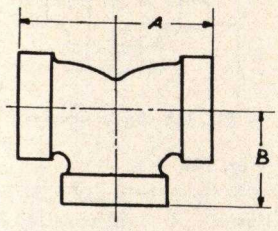


Fig. 124—3-Way Elbows

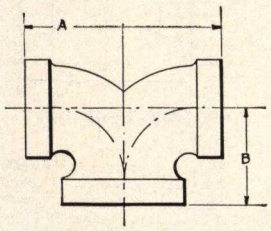


Fig. 125—Reducing 3-Way Elbows

Three-Way Elbows—Figs. 124 and 125

Size ..... Inches	1¼	1½	2	2½	3	4
Dimension A ..... Inches	4½	5¼	6¼	7 3/8	8 5/8	10 3/8
Dimension B ..... Inches	2¼	2 5/8	3⅛	3 11/16	4 5/16	5 3/16
Figs. 124-125—Black .. Each	$0.75	$0.85	$1.10	$2.25	$3.00	$5.00
Galvanized .. Each	1.25	1.50	1.95	3.90	5.25	8.75

Size ..... Inches	4x3	5	5x4	6	6x4	6x5
Dimension A ..... Inches	9½	12¼	11 3/8	14¼	13 3/8	13 3/8
Dimension B ..... Inches	4 5/16	6⅛	5 5/16	7⅛	5 7/16	6¼
Figs. 124-125—Black .. Each	$5.50	$ 7.50	$ 8.25	$13.50	$15.00	$15.00
Galvanized .. Each	9.65	13.15	14.50	23.50	26.25	26.25

Tapped, pitched ¼-inch to the foot.

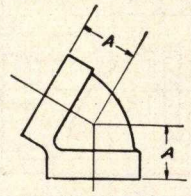


Fig. 117
60° Short Turn Elbows

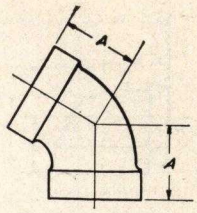


Fig. 118
60° Long Turn Elbows

60-Degree Short and Long Turn Elbows—Figs. 117 and 118

Size ..... Inches	1¼	1½	2	2½	3
Fig. 117—Dimension A ..... Inches	1 9/16	1¾	2	2½	2 7/8
Fig. 118—Dimension A ..... Inches	2	2¼	2 9/16	2 13/16	3 3/16
Fig. 117—Black ..... Each	$0.30	$0.38	$0.57	$1.20	$1.45
Galvanized ..... Each	.52	.67	1.00	2.10	2.55
Fig. 118—Black ..... Each	.35	.42	.65	1.40	1.75
Galvanized ..... Each	.60	.72	1.15	2.45	3.10

Size ..... Inches	4	5	6	8	10
Fig. 117—Dimension A ..... Inches	3 3/8	3 7/8	4 3/16	5 3/8	6¼
Fig. 118—Dimension A ..... Inches	4				
Fig. 117—Black ..... Each	$2.30	$4.25	$6.25	$15.00	$31.00
Galvanized ..... Each	4.00	7.40	11.00	26.25	54.00
Fig. 118—Black ..... Each	2.75	5.25	7.50	19.00	38.00
Galvanized ..... Each	4.80	9.20	13.15	33.25	66.50

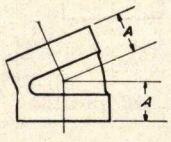


Fig. 121—22½° Elbows

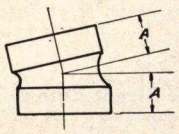


Fig. 122—11¼° Elbows

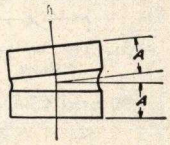


Fig. 123—5⅝° Elbows

Elbows—Figs. 121, 122 and 123

Size ..... Inches	1¼	1½	2	2½	3
Fig. 121—Dimension A ..... Inches	1⅛	1¼	1 7/16	1¾	2
Fig. 122—Dimension A ..... Inches	1⅛	1 7/32	1 13/32	1 21/32	1 13/16
Fig. 123—Dimension A ..... Inches	1⅛	1 5/16	1½	1⅝	1¾
Fig. 121—Black ..... Each	$0.30	$0.38	$0.57	$1.20	$1.45
Galvanized ..... Each	.52	.67	1.00	2.10	2.55
Fig. 122—Black ..... Each	.30	.38	.57	1.20	1.45
Galvanized ..... Each	.52	.67	1.00	2.10	2.55
Fig. 123—Black ..... Each	.30	.38	.57	1.20	1.45
Galvanized ..... Each	.52	.67	1.00	2.10	2.55

Size ..... Inches	4	5	6	8	10
Fig. 121—Dimension A ..... Inches	2 5/16	2 5/8	2 15/16	3 9/16	3 7/8
Fig. 122—Dimension A ..... Inches	2⅛	2 3/8	2½	2¾	3
Fig. 123—Dimension A ..... Inches	2	2¼	2 5/16	2½	2¾
Fig. 121—Black ..... Each	$2.30	$4.25	$ 6.25	$15.00	$31.00
Galvanized ..... Each	4.00	7.40	11.00	26.25	54.00
Fig. 122—Black ..... Each	2.30	4.25	6.25	15.00	31.00
Galvanized ..... Each	4.00	7.40	11.00	26.25	54.00
Fig. 123—Black ..... Each	2.30	4.25	6.25	15.00	31.00
Galvanized ..... Each	4.00	7.40	11.00	26.25	54.00

90-Degree Elbows are tapped, pitched ¼-inch to the foot.

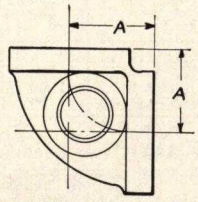


Fig. 126—90° Elbows with Side Inlet

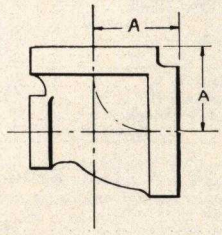


Fig. 127—90° Elbows with Heel Inlet

90-Degree Elbows with Side and Heel Inlets—Figs. 126 and 127

	Size Inches	Dimensions A Inches	Size of Inlet Inches	Price Black Each	Price Galvanized Each
Figs. 126-127.	3	.....	2	$3.00	$5.00
Figs. 126-127.	4	3 13/16	2	3.85	6.75

Tapped, pitched ¼-inch to the foot.

Dimensions subject to a slight variation and change without notice

SEMLER Cast Iron Drainage Fittings

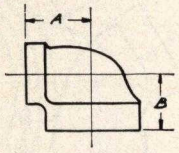


Fig. 128—Reducing Closet Elbows

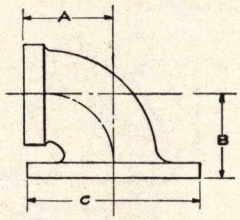


Fig. 129—Closet Elbows with Flange

Closet Elbows—Figs. 128 and 129

	Size Inches	Dimension A Inches	Dimension B Inches	Diameter of Flange C, Inches	Price Black Each	Price Galvanized Each
Fig. 128...	4x5	4 7/16	3 13/16	.....	$4.25	$7.40
Fig. 129...	4	3 13/16	4 5/8	7	4.25	7.40

Tapped, pitched ¼-inch to the foot.
The Inlets of Reducing Fittings are always the smallest opening.

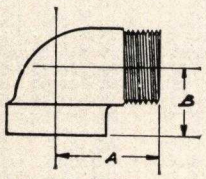


Fig. 132—90° Street Elbow

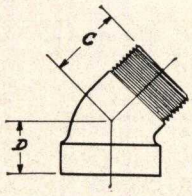


Fig. 133—45° Street Elbow

90 and 45-Degree Street Elbows—Figs. 132 and 133

Size.....Inches	1¼	1½	2
Dimension A.....Inches	2 5/8	2 15/16	3 5/16
Dimension B.....Inches	1 5/8	1 13/16	2 1/8
Dimension C.....Inches	1 7/8	2	2 7/16
Dimension D.....Inches	1 3/16	1¼	1¾
Figs. 132, 133—Black.....Each	$0.35	$0.40	$0.60
Galvanized.....Each	.60	.70	1.10

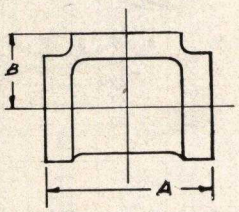


Fig. 139—Tees

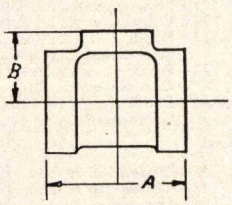


Fig. 140—Reducing Tees

Tees—Fig. 139

Size.....Inches	1¼	1½	2	2½	3
Dimension A.....Inches	3½	4 3/8	4 5/8	5 5/8	6 3/8
Dimension B.....Inches	1¾	2 3/16	2 5/16	2 13/16	3 3/16
Fig. 139—Black.....Each	$0.45	$0.55	$0.80	$1.50	$2.00
Galvanized.....Each	.80	1.00	1.40	2.50	3.50

Size.....Inches	4	5	6	8	10
Dimension A.....Inches	8	9¼	10 3/8	13	15½
Dimension B.....Inches	4	4 5/8	5 5/16	6½	7¾
Fig. 139—Black.....Each	$3.25	$ 6.00	$ 8.75	$21.00	$43.00
Galvanized.....Each	5.70	10.50	15.25	37.00	75.00

Reducing Tees—Fig. 140

Size.....Inches	1½x1¼	2x1½	2½x2	3x2	4x2
Dimension A.....Inches	2 5/16	4 1/8	4 3/4	5½	6
Dimension B.....Inches	4 5/8	2¼	3	3	3 9/16
Fig. 140—Black.....Each	$0.60	$0.90	$1.65	$2.20	$3.60
Galvanized.....Each	1.10	1.60	2.75	3.85	6.30

Size.....Inches	4x3	5x2	5x3	5x4	6x4
Dimension A.....Inches	7	6	6 7/8	.....	.....
Dimension B.....Inches	3¾	4 3/16	4 3/8	.....	.....
Fig. 140—Black.....Each	$3.60	$ 6.60	$ 6.60	$ 6.60	$ 9.60
Galvanized.....Each	6.30	11.55	11.55	11.55	16.75

The Inlets of Tees are tapped, pitched ¼-inch to the foot.
The Inlets of Reducing Fittings are always the smallest openings.

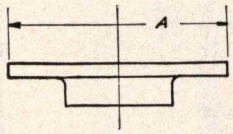


Fig. 130—Closet Flanges

Closet Flanges—Fig. 130

Size.....Inches	4	5
Diameter of Flange A.....Inches	7	10
Fig. 130—Black.....Each	$1.35	$2.35
Galvanized.....Each	1.70	2.95

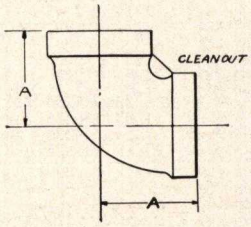


Fig. 134—Without Base

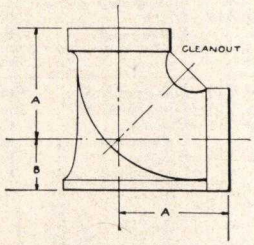


Fig. 135—With Base

90-Degree Long Turn Elbows with Cleanout Figs. 134 and 135

Size.....Inches	2	3	4	5	6
Dimension A.....Inches	.....	.....	6¼	7	8¼
Dimension B.....Inches	.....	.....	2 7/8	3 7/16	4 1/16
Size of Cleanout.....Inches	.....	.....	2	2	2½
Fig. 134—Black.....Each	.....	.....	$ 5.00	$ 7.50	$10.00
Galvanized.....Each	.....	.....	8.75	13.00	17.50
Fig. 135—Black, with Base....Each	.....	.....	7.00	.....	.....
Galvanized, with Base.....Each	.....	.....	12.25	.....	.....

Long Turn Elbows are tapped, pitched ¼-inch to the foot.

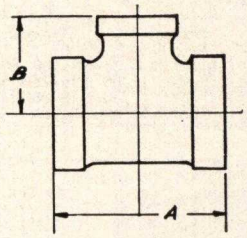


Fig. 141—Basin Tees

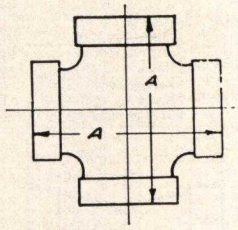


Fig. 142—Basin Crosses

Basin Tees—Fig. 141

Size.....Inches	1¼	1½	1½x1¼	2	2x1¼	2x1½	2½
Dimension A.....Inches	4 5/8	5 5/8	5 1/8	7	6¼	6½	8½
Dimension B.....Inches	2 5/16	2 11/16	2 9/16	3½	3 1/8	3¼	4¼
Fig. 141—Black.....Each	$0.60	$0.70	$0.77	$1.10	$1.20	$1.20	$1.75
Galvanized....Each	1.00	1.22	1.35	1.95	2.10	2.10	3.00

Basin Crosses—Fig. 142

Size.....Inches	1¼	1½	2	2x1½
Dimension A.....Inches	4 5/8	5 3/8	7	6½
Fig. 142—Black.....Each	$1.25	$1.50	$1.75	$1.95
Galvanized.....Each	2.25	2.50	3.10	3.40

The Inlets of Tees, Basin Tees and Crosses are tapped, pitched ¼-inch to the foot.
The Inlets of Reducing Fittings are always the smallest openings.

Dimensions subject to a slight variation and change without notice

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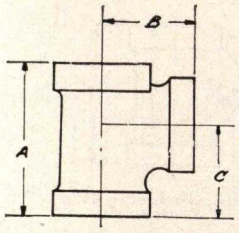


Fig. 143—90° Short Turn Y-Branches—Tee Pattern

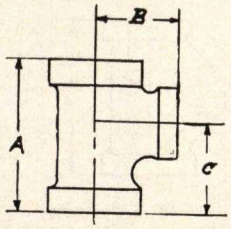


Fig. 144—Reducing 90° Short Turn Y-Branches—Tee Pattern

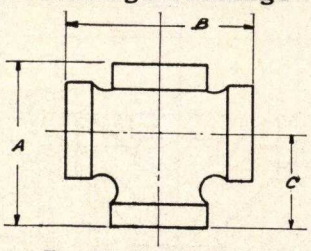


Fig. 145—Double 90° Short Turn Y-Branches—Tee Pattern

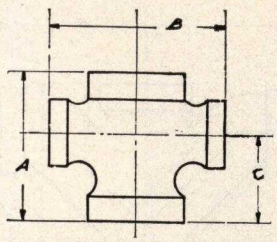


Fig. 146—Reducing Double 90° Short Turn Y-Branches—Tee Pattern

90-Degree Short Turn Y-Branches, Tee Pattern—Fig. 143

Size.....Inches	1¼	1½	2	2½	3	4	5	6	8	10
Dimensions AIn.	3¾	4¼	5 3/16	6 5/16	7¼	8¾	10 5/16	11 15/16	15 1/16	20
Dimensions BIn.	2¼	2½	3 1/16	3 11/16	4¼	5 3/16	6⅛	7⅛	9	11⅜
Dimensions CIn.	2¼	2½	3 1/16	3 11/16	4¼	5 3/16	6⅛	7⅛	9	11⅜
Fig. 143—										
Black.....Ea.	$0.45	$0.57	$0.85	$1.80	$2.20	$3.50	$6.50	$9.50	23.00	47.00
Galvanized.Ea.	.80	1.00	1.50	3.15	3.85	6.15	11.35	16.50	40.00	82.00

Reducing 90-Degree Short Turn Y-Branches, Tee Pattern—Fig. 144

Size.....Inches	1½x1¼	2x1¼	2x1½	2½x1¼	2½x1½	2½x2
Dimensions A.....Inches	3 7/8	.....	4 5/8	4 3/16	4 7/8	5½
Dimensions B.....Inches	2½	.....	2 15/16	2 15/16	3 1/16	3 5/16
Dimensions C.....Inches	2⅜	.....	2 11/16	2½	2 13/16	3¼
Fig. 144—Black.....Each	$0.63	$0.95	$0.95	$2.00	$2.00	$2.00
Galvanized..Each	1.10	1.65	1.65	3.50	3.50	3.50

Size.....Inches	3x1¼	3x1½	3x2	4x1½	4x2	4x2½	4x3
Dimensions A.....Inches	.....	5 1/16	5 11/16	5¼	5 13/16	6⅝	7⅜
Dimensions B.....Inches	.....	3 5/16	3⅝	3 13/16	4 1/16	4 7/16	4¾
Dimensions C.....Inches	.....	2 15/16	3 5/16	3	3⅜	3 13/16	4 5/16
Fig. 144—Black.....Each	$2.40	$2.40	$2.40	$3.85	$3.85	$3.85	$3.85
Galvanized.Each	4.20	4.20	4.20	6.75	6.75	6.75	6.75

Size.....Inches	3x4	5x1½	5x2	5x2½	5x3	5x4	6x1½
Dimensions A.....Inches	8 5/8	5 9/16	6⅛	6 15/16	7¾	9⅛	.....
Dimensions B.....Inches	5 5/16	4⅜	4 5/8	4⅞	5¼	5 11/16	.....
Dimensions C.....Inches	5⅛	3 3/16	3 9/16	4	4½	5⅜	.....
Fig. 144—Black.....Each	$3.85	$ 7.15	$ 7.15	$ 7.15	$ 7.15	$ 7.15	$10.50
Galvanized.Each	6.75	12.50	12.50	12.50	12.50	12.50	18.50

Size.....Inches	6x2	6x2½	6x3	6x4	6x5	8x2	8x3
Dimensions A.....Inches	6¼	.....	7 7/8	9¼	10 9/16	.....	11 7/16
Dimensions B.....Inches	5⅛	.....	5¾	6 5/16	6⅝	.....	7¼
Dimensions C.....Inches	3⅝	.....	4 9/16	5 1/16	6¼	.....	7 15/16
Fig. 144—Black.....Each	$10.50	$10.50	$10.50	$10.50	$10.50	$25.50	$25.50
Galvanized.Each	18.50	18.50	18.50	18.50	18.50	44.50	44.50

Size.....Inches	8x4	8x5	8x6	10x4	10x6	10x8
Dimensions A.....Inches	11 7/16	.....	15 1/16	.....	.....	.....
Dimensions B.....Inches	7 9/16	.....	8 5/16	.....	.....	.....
Dimensions C.....Inches	7½	.....	5 5/8	.....	.....	.....
Fig. 144—Black.....Each	$25.50	$25.50	$25.50	$52.00	$52.00	$52.00
Galvanized..Each	44.50	44.50	44.50	88.00	88.00	88.00

Double 90-Degree Short Turn Y-Branches, Tee Pattern—Fig. 145

Size.....Inches	1¼	1½	2	2½	3
Dimensions A....Inches	3¾	4¼	5 3/16	6 5/16	7¼
Dimensions B....Inches	4½	5	6⅛	7 3/8	8½
Dimensions C....Inches	2¼	2½	3 1/16	3 11/16	4¼
Fig. 145—Black....Each	$0.70	$0.85	$1.30	$2.85	$3.40
Galvanized.Each	1.22	1.50	2.30	5.00	5.95

Size.....Inches	4	5	6	8	10
Dimensions A....Inches	8¾	10 5/16	11 15/16	15 1/16	20
Dimensions B....Inches	10 3/8	12¼	14¼	18	22¾
Dimensions C....Inches	5 5/16	6⅛	7⅛	9	11⅜
Fig. 145—Black....Each	$5.25	$9.50	$14.00	$36.00	$60.00
Galvanized.Each	9.20	16.50	24.50	62.00	102.00

Reducing Double 90-Degree Short Turn Y-Branches, Tee Pattern—Fig. 146

Size.....Inches	1½x1¼	2x1¼	2x1½	2½x1½	2½x2
Dimensions A....Inches	3 7/8	.....	4 5/8	.....	5½
Dimensions B....Inches	5	.....	5 7/8	.....	6 5/8
Dimensions C....Inches	2⅜	.....	2 11/16	.....	3¼
Fig. 146—Black....Each	$0.95	$1.50	$1.50	$3.15	$3.15
Galvanized.Each	1.65	2.60	2.60	5.50	5.50

Size.....Inches	3x1½	3x2	4x2	4x3	5x2	5x3
Dimensions A.....Inches	5 1/16	5 11/16	5 13/16	.....	.....	.....
Dimensions B.....Inches	6 5/8	7¼	8⅛	.....	.....	.....
Dimensions C.....Inches	2 15/16	3 5/16	3⅜	.....	.....	.....
Fig. 146—Black.....Each	$3.75	$3.75	$5.75	$5.75	$10.50	$10.50
Galvanized..Each	6.55	6.55	10.00	10.00	18.50	18.50

Size.....Inches	5x4	6x2	6x3	6x4	6x5	8x3
Dimensions A.....Inches	9⅛	6¼	.....	9¼	10 9/16	.....
Dimensions B.....Inches	11 3/8	10¼	.....	12 3/8	13¼	.....
Dimensions C.....Inches	5 3/8	3 5/8	.....	5 7/16	6¼	.....
Fig. 146—Black.....Each	$10.50	$15.50	$15.50	$15.50	$15.50	$40.00
Galvanized..Each	18.50	27.00	27.00	27.00	27.00	68.00

Size.....Inches	8x4	8x6	10x4	10x6	10x8
Dimensions A.....Inches	.....	15 1/16	.....	.....	.....
Dimensions B.....Inches	.....	16 5/8	.....	.....	.....
Dimensions C.....Inches	.....	9 3/8	.....	.....	.....
Fig. 146—Black.....Each	$40.00	$40.00	$ 66.00	$ 66.00	$ 66.00
Galvanized....Each	68.00	68.00	112.00	112.00	112.00

The Inlets of 90-Degree Y-Branches are tapped, pitched ¼-inch to the foot.
The Inlets of Reducing Fittings are always the smallest openings.

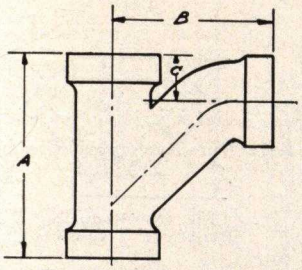


Fig. 147—90° Long Turn Y-Branches—Tee Pattern

90-Degree Long Turn Y-Branches, Tee Pattern—Fig. 147

Size.....Inches	1¼	1½	2	2½	3
Dimensions A.....Inches	4¾	5⅜	7 1/16	8¼	9 13/16
Dimensions B.....Inches	3 5/8	4⅛	5 7/16	6¼	7½
Dimensions C.....Inches	1 3/16	1¼	1 5/8	2	2 5/16
Fig. 147—Black.....Each	$0.57	$0.70	$1.10	$2.40	$3.35
Galvanized.....Each	1.00	1.22	1.95	4.20	5.85

Size.....Inches	4	5	6	8	10
Dimensions A.....Inches	13¾	15¾	18 11/16	24 9/16	.....
Dimensions B.....Inches	9 7/8	12¼	14 9/16	19 5/16	.....
Dimensions C.....Inches	2 7/8	3½	4⅛	5¼	.....
Fig. 147—Black.....Each	$ 6.00	$ 9.50	$20.00	$40.00	.....
Galvanized.....Each	10.50	16.50	35.00	70.00	.....

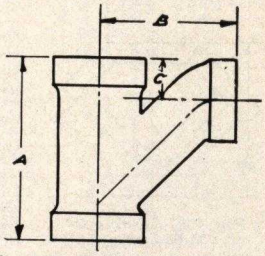


Fig. 148—Reducing 90° Long Turn Y-Branches—Tee Pattern

Reducing 90-Degree Long Turn Y-Branches, Tee Pattern—Fig. 148

Size.....Inches	1½x1¼	2x1¼	2x1½	2½x1¼	2½x1½	2½x2	3x1½	3x2	4x1½	4x2	4x2½	4x3
Dimensions A.....Inches	5⅛	.....	5¾	.....	5¾	7⅜	5 15/16	7 9/16	6 1/16	7 11/16	8⅝	10
Dimensions B.....Inches	3 7/8	.....	4⅝	.....	4 9/16	5¾	5	6 1/16	5 7/16	6⅝	7 1/16	8 1/16
Dimensions C.....Inches	1 3/16	.....	1 5/16	.....	1 5/16	1⅝	1 5/16	1 5/8	1 5/16	1⅝	2	2⅜
Fig. 148—Black.....Each	$0.80	$1.20	$1.20	$2.65	$2.65	$2.65	$3.75	$3.75	$6.60	$6.60	$6.60	$6.60
Galvanized.....Each	1.40	2.10	2.10	4.65	4.65	4.65	6.55	6.55	11.55	11.55	11.55	11.55

Size.....Inches	5x1½	5x2	5x3	5x4	6x2	6x3	6x4	6x5	8x3	8x4	10x4	10x6
Dimensions A.....Inches	6 5/16	7¾	10¼	13	7 15/16	10⅜	13 1/16	16 1/16	10⅝	13⅜	14	20¼
Dimensions B.....Inches	6	7⅛	8⅝	10 7/16	7¾	9⅞	11	12 13/16	10¼	12	13	17¼
Dimensions C.....Inches	1⅜	1⅝	2⅜	2 7/8	1⅝	2 5/16	2⅞	3½	2⅝	2 15/16	3	4 1/16
Fig. 148—Black.....Each	$10.50	$10.50	$10.50	$10.50	$22.00	$22.00	$22.00	$22.00	$44.00	$44.00	$50.00	$60.00
Galvanized.....Each	18.50	18.50	18.50	18.50	38.50	38.50	38.50	38.50	77.00	77.00	102.00	102.00

The Inlets of Long Turn 90-Degree Y-Branches are tapped, pitched ¼ inch to the foot.
The Inlets of Reducing Fittings are always the smallest openings.

Dimensions subject to a slight variation and change without notice

SEMLER Cast Iron Drainage Fittings

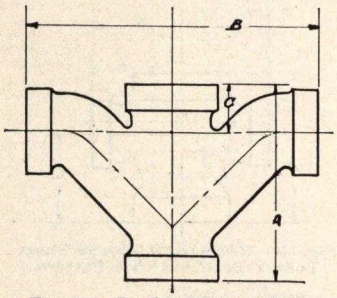


Fig. 149—Double 90° Long Turn Y-Branches—Tee Pattern

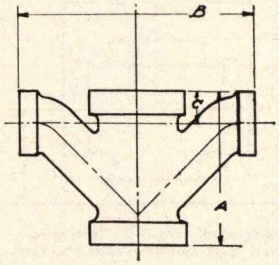


Fig. 150—Reducing Double 90° Long Turn Y-Branches—Tee Pattern

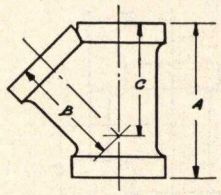


Fig. 151—45° Y-Branches

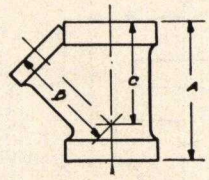


Fig.152—Reducing 45° Y-Branches

Double 90-Degree Long Turn Y-Branches, Tee Pattern—Fig. 149

Size—Inches	1¼	1½	2	2½	3
Dimensions A—Inches	4¾	5⅜	7 1/16	8¼	9 13/16
Dimensions B—Inches	7¾	8¼	10⅞	12½	15
Dimensions C—Inches	1 5/16	1¼	1⅝	2	2 5/16
Fig. 149—Black—Each	$1.00	$1.10	$1.75	$3.60	$5.00
Galvanized—Each	1.75	1.95	3.10	6.30	8.75

Size—Inches	4	5	6	8	10
Dimensions A—Inches	13¾	15¾	18 11/16	24 9/16	.....
Dimensions B—Inches	19¾	24½	29 1/16	38 5/8	.....
Dimensions C—Inches	2⅞	3½	4⅛	5¼	.....
Fig. 149—Black—Each	$ 9.00	$14.00	$30.00	$60.00	$70.00
Galvanized—Each	15.75	24.50	52.50	105.00	119.00

Reducing Double 90-Degree Long Turn Y-Branches, Tee Pattern—Fig. 150

Size—Inches	1½x1¼	2x1¼	2x1½	2½x1¼	2½x1½
Dimensions A—Inches	5⅛	.....	5¾	.....	5¾
Dimensions B—Inches	7¾	.....	8¾	.....	9⅛
Dimensions C—Inches	1 3/16	.....	1 5/16	.....	1 5/16
Fig. 150—Black—Each	$1.25	$1.90	$1.90	$4.00	$4.00
Galvanized—Each	2.25	3.35	3.35	7.00	7.00

Size—Inches	2½x2	3x1½	3x2	4x2	4x3
Dimensions A—Inches	7⅜	5 15/16	7 9/16	7 11/16	10
Dimensions B—Inches	11½	10	12⅛	13¼	16⅛
Dimensions C—Inches	1⅝	1 5/16	1⅝	1⅝	2⅜
Fig. 150—Black—Each	$4.00	$5.50	$5.50	$10.00	$10.00
Galvanized—Each	7.00	9.65	9.65	17.50	17.50

Size—Inches	5x2	5x3	5x4	6x2	6x4	6x5
Dimensions A—Inches	7¾	10¼	13	7 15/16	13 1/16	16 1/16
Dimensions B—Inches	14¼	17¼	20⅞	15½	22	22
Dimensions C—Inches	1⅝	2⅜	2⅞	1⅝	2⅞	3½
Fig. 150—Black—Each	$15.50	$15.50	$15.50	$33.00	$33.00	$33.00
Galvanized—Each	27.00	27.00	27.00	58.00	58.00	58.00

The Inlets of Double 90-Degree Long Turn Y-Branches are tapped, pitched ¼-inch to the foot.
The Inlets on Reducing Fittings are always the smallest openings.

45-Degree Y-Branches—Fig. 151

Size—Inches	1¼	1½	2	2½	3
Dimensions A—Inches	5	5½	6 7/16	7⅞	9
Dimensions B—Inches	3¼	3⅝	4 5/16	5⅜	6 3/16
Dimensions C—Inches	3¼	3⅝	4 5/16	5⅜	6 3/16
Fig. 151—Black—Each	$0.52	$0.65	$0.95	$2.10	$2.65
Galvanized—Each	.90	1.15	1.65	3.70	4.65

Size—Inches	4	5	6	8	10
Dimensions A—Inches	10⅞	12 15/16	14¾	18 13/16	20
Dimensions B—Inches	7 11/16	9 3/16	10¾	13 9/16	16⅛
Dimensions C—Inches	7 11/16	9⅜	10¾	13 9/16	16⅛
Fig. 151—Black—Each	$3.85	$ 7.10	$10.50	$25.00	$52.00
Galvanized—Each	6.75	12.50	18.50	44.00	91.00

Reducing 45-Degree Y-Branches—Fig. 152

Size—Inches	1½x1¼	2x1¼	2x1½	2½x1¼	2½x1½
Dimensions A—Inches	5	5⅜	5⅞	.....	6 7/16
Dimensions B—Inches	3 9/16	3 15/16	4⅛	.....	4 5/8
Dimensions C—Inches	3½	3¾	4 1/16	.....	4 9/16
Fig. 152—Black—Each	$0.72	$1.05	$1.05	$2.30	$2.30
Galvanized—Each	1.25	1.85	1.85	4.00	4.00

Size—Inches	2½x2	3x1½	3x2	3x2½	4x1½
Dimensions A—Inches	7 1/16	6 5/8	7⅜	8	7 3/16
Dimensions B—Inches	5⅛	5 1/16	5⅜	5 13/16	6 1/16
Dimensions C—Inches	4 15/16	4 19/16	5 5/16	5 11/16	5¾
Fig. 152—Black—Each	$2.30	$2.90	$2.90	$2.90	$4.25
Galvanized—Each	4.00	5.10	5.10	5.10	7.40

Size—Inches	4x2	4x2½	4x3	5x2	5x3
Dimensions A—Inches	7 11/16	.....	9¼	8¼	9 13/16
Dimensions B—Inches	6 5/16	.....	7 3/16	7 3/16	7⅞
Dimensions C—Inches	6	.....	6⅞	6⅞	7 5/8
Fig. 152—Black—Each	$4.25	$4.25	$4.25	$ 7.80	$ 7.80
Galvanized—Each	7.40	7.40	7.40	13.65	13.65

Size—Inches	5x4	6x2	6x3	6x4	6x5	8x3
Dimensions A—Inches	11 3/8	8 7/16	10	11 7/8	13	.....
Dimensions B—Inches	8½	8 1/16	8¾	9 3/8	10	.....
Dimensions C—Inches	8 7/16	7 9/16	8 5/16	9 1/16	9 13/16	.....
Fig. 152—Black—Each	$ 7.80	$11.50	$11.50	$11.50	$11.50	$27.50
Galvanized—Each	13.65	20.00	20.00	20.00	20.00	48.00

Size—Inches	8x4	8x5	8x6	10x4	10x5	10x6
Dimensions A—Inches	11 7/16	14¼	14 15/16	14	.....	15½
Dimensions B—Inches	11	12	12⅜	12⅞	.....	14¼
Dimensions C—Inches	10 7/16	11¼	11 7/8	11½	.....	13½
Fig. 152—Black—Each	$27.50	$27.50	$27.50	$57.00	$57.00	$57.00
Galvanized—Each	48.00	48.00	48.00	97.00	97.00	97.00

The Inlets on Reducing Fittings are always the smallest openings.

Double 45-Degree Y-Branches—Fig. 153

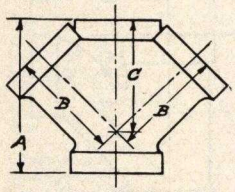


Fig. 153—Double 45° Y-Branches

Size—Inches	1¼	1½	2	2½	3
Dimensions A—Inches	5	5½	6 7/16	7⅞	9
Dimensions B—Inches	3¼	3⅝	4 5/16	5⅜	6 3/16
Dimensions C—Inches	3¼	3⅝	4 5/16	5⅜	6 3/16
Fig. 153—Black—Each	$0.90	$1.00	$1.45	$3.25	$4.00
Galvanized—Each	1.60	1.75	2.55	5.70	7.00

Size—Inches	4	5	6	8	10
Dimensions A—Inches	10⅞	12 15/16	14¾	18 13/16	20
Dimensions B—Inches	7 11/16	9 3/16	10¾	13 9/16	16⅛
Dimensions C—Inches	7 11/16	9 3/16	10¾	13 9/16	16⅛
Fig. 153—Black—Each	$ 5.75	$10.75	$16.00	$38.00	$78.00
Galvanized—Each	10.00	18.80	28.00	66.50	137.00

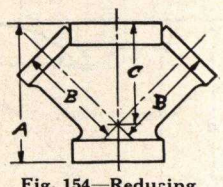


Fig. 154—Reducing Double 45° Y-Branches

Reducing Double 45-Degree Y-Branches—Fig. 154

Size—Inches	1½x1¼	2x1½	2½x1¼	2½x1½	3x1½	3x2	4x2	4x3	5x2
Dimensions A—Inches	.....	5⅞	.....	6 7/16	6⅝	7⅜	7 11/16	9¼	8¼
Dimensions B—Inches	.....	4⅛	.....	4⅝	5 1/16	5⅜	6 5/16	7 3/16	7 3/16
Dimensions C—Inches	.....	4 1/16	.....	4 9/16	4 15/16	5 5/16	6	6⅞	6⅞
Fig. 154—Black—Each	$1.10	$1.60	$3.60	$3.60	$4.40	$4.40	$6.35	$6.35	$11.75
Galvanized—Each	1.90	2.80	6.30	6.30	7.70	7.70	11.00	11.00	20.50

Size—Inches	5x3	5x4	6x2	6x3	6x4	6x5	8x4	8x5	8x6
Dimensions A—Inches	9 13/16	11 3/8	8 7/16	10	11 7/8	13	11 7/16	.....	14 15/16
Dimensions B—Inches	7⅞	8½	8 1/16	8¾	9 3/8	10	11	.....	12 3/8
Dimensions C—Inches	7⅝	8 7/16	7 9/16	8 5/16	9 1/16	9 13/16	10 7/16	.....	11 7/8
Fig. 154—Black—Each	$11.75	$11.75	$17.50	$17.50	$17.50	$17.50	$42.00	$42.00	$42.00
Galvanized—Each	20.50	20.50	30.50	30.50	30.50	30.50	72.00	72.00	72.00

The Inlets on Reducing Fittings are always the smallest opening.

Dimensions subject to a slight variation and change without notice

SEMLER Cast Iron Drainage Fittings

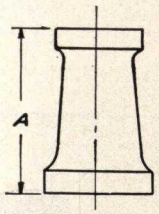


Fig. 136
Increasers

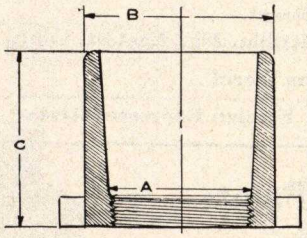


Fig. 137—Roof Connections

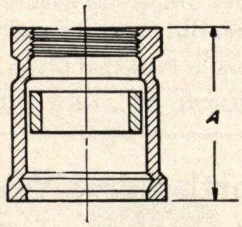


Fig. 138
Tucker Connections

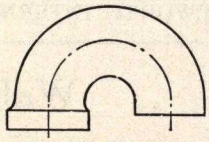


Fig. 158—Cappings
for Air Inlet Pipe

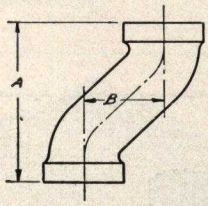


Fig. 159—Offsets

Increasers—Fig. 136

Size.....Inches	3x2	4x2	4x3	5x2	5x3	5x4	6x4	6x5	8x4	8x6	10x8
Dimensions A.....Inches	9	9	9	9	9	9	9	9	9	9	9
Fig. 136—Black.....Each	$2.50	$3.75	$3.75	$5.50	$5.50	$5.50	$6.50	$6.50	$15.00	$15.00	$20.00
Galvanized.....Each	4.40	6.55	6.55	9.65	9.65	9.65	11.35	11.35	26.25	26.25	35.00

Roof Connections—Fig. 137

Size.....Inches	2	3	4	5	6
Dimensions A.....Inches	2 15/16	4 1/4	5 1/8	6	7 1/8
Dimensions B.....Inches	3 1/2	4 7/8	5 7/8	6 7/8	8
Dimensions C.....Inches	3 3/4	4 1/2	5	5 1/2	6
Fig. 137—Black.....Each	$1.15	$1.20	$1.50	$2.00	$4.25
Galvanized....Each	2.00	2.10	2.60	3.50	7.40

Tucker Connections—Fig. 138

Size.....Inches	1 1/2	2	2 1/2	3	4	5	6	8
Dimensions A.....Inches	.....	4 1/2	.....	4 3/4	7	7	7	7
Fig. 138—Black.....Each	$0.55	$0.80	$1.50	$2.00	$3.25	$6.00	$8.75	$21.00
Galvanized..Each	1.00	1.40	2.45	3.50	5.70	10.50	15.25	37.00

Cappings—Fig. 158

Sizes.....Inches	2	3	4	5
Fig. 158—Black.....Each	$2.50	$3.50	$ 8.00	$10.00
Galvanized....Each	4.25	6.00	14.00	17.50

Offsets—Fig. 159

Size.....Inches	2	2	2	2	3	3	3
Offset B.....Inches	4	6	8	10	4	6	8
Length A.....Inches	7 1/2	9 1/2	11 1/2	13 1/2	8 3/4	10 3/4	12 3/4
Fig. 159—Black.....Each	$2.15	$2.40	$2.60	$2.85	$3.35	$4.00	$4.75
Galvanized..Each	3.75	4.20	4.55	5.00	5.85	7.00	8.30

Size.....Inches	3	4	4	4	4	4	5
Offset B.....Inches	10	4	6	8	10	12	6
Length A.....Inches	14 3/4	9 3/4	11 3/4	13 3/4	15 3/4	17 3/4	12 5/8
Fig. 159—Black.....Each	$5.50	$5.00	$ 5.75	$ 6.50	$ 7.50	$ 8.50	$ 9.00
Galvanized..Each	9.65	8.75	10.00	11.35	13.15	15.00	15.75

Size.....Inches	5	5	5	6	6	6	6
Offset B.....Inches	8	10	12	6	8	10	12
Length A.....Inches	14 5/8	16 5/8	18 5/8	13 5/8	15 5/8	17 5/8	19 5/8
Fig. 159—Black.....Each	$10.00	$11.00	$12.00	$12.50	$13.50	$14.50	$15.50
Galvanized..Each	17.50	19.25	21.00	22.00	23.50	25.50	27.00

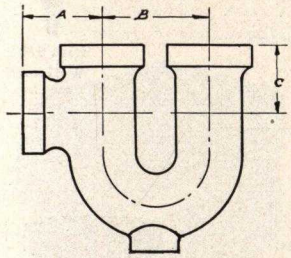


Fig. 160—Half S-Traps

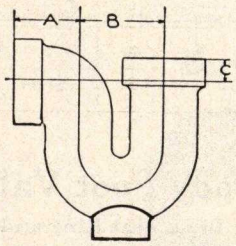


Fig. 164—Bath or P Trap

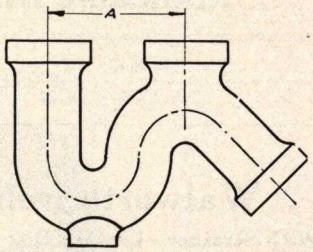


Fig. 161—Three-quarter S-Traps

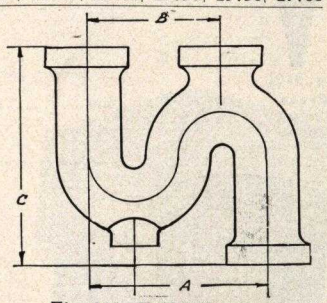


Fig. 162—Full S-Traps

Half S-Traps with or without Vent—Fig. 160

Size.....Inches	1 1/4	1 1/2	2	3	4	5	6	8
Dimensions A.....Inches	2 5/16	2 1/2	3 1/16	4 3/16	5 1/8	6 1/16	6 9/16	8 15/16
Dimensions B.....Inches	3 1/8	3 3/8	4	5 3/8	7	8 3/8	10 1/8	12 3/8
Dimensions C.....Inches	2	2 1/4	2 9/16	3 1/2	4 3/16	4 3/4	5 7/16	6 3/4
Size of Vent.....Inches	1 1/4	1 1/2	2	3	4	4	4	6
Fig. 160—Black.....Each	$1.55	$1.70	$2.20	$5.00	10.00	21.50	32.50	55.00
Galvanized...Each	2.70	3.00	3.85	8.75	17.50	37.50	57.00	95.00

The Outlet of a Half S-Trap is tapped, pitched ¼-inch to the foot.

Three-Quarter S-Traps with or without Vent—Fig. 161

Size.....Inches	2	3	4	5	6	8
Dimensions A.....Inches	5 15/16	8 1/16	10 17/32	12 9/16	15 9/16	18 9/16
Size of Vent.....Inches	2	3	4	4	4	4
Fig. 161—Black.....Each	$4.00	$9.25	$14.00	$21.00	$36.00	.....
Galvanized..Each	7.00	16.00	24.00	37.00	63.00	.....

Above can be furnished with Cleanout when so ordered.

California Pattern Bath Traps—"P" Pattern—Fig. 164

Size.....Inches	1 1/4	1 1/2	2	3	4
Dimensions A.....Inches	1 15/16	2 1/8	2 9/16	3 3/8	4 1/4
Dimensions B.....Inches	2	2 1/4	2 3/4	3 3/4	5
Dimensions C.....Inches	3/4	7/8	7/8	1 3/16	1 1/2
Price, Black.....Each	$1.45	$1.60	$2.00	$4.70	$9.40
Price, Galvanized.....Each	2.55	2.80	3.50	8.25	16.50

Full S-Traps with or without Vent—Fig. 162

Size.....Inches	1 1/4	1 1/2	2	3	4	5	6	8
Dimensions A....Inches	.....	7 1/16	8 1/4	10 3/4	14 1/8	16 3/4	20 1/4	24 13/16
Dimensions B....Inches	.....	5 1/4	6 1/4	8 1/16	10 5/8	12 9/16	15 5/16	18 9/16
Dimensions C....Inches	.....	7 7/8	8	11 1/4	13 3/4	16 1/8	19 3/4	25 7/8
Size of Vent.....Inches	.....	1 1/2	2	3	4	4	4	4
Size of Cleanout..Inches	.....	1	1	1 1/4	2	2	2	2
Fig. 162—Black...Each	$3.25	$3.25	$4.00	$9.25	$14.00	$21.00	$36.00	$60.00
Galvanized...Each	5.75	5.75	7.00	16.00	24.00	37.00	63.00	105.00

Running Traps with or without Vent—Fig. 163

Size.....Inches	1 1/4	1 1/2	2	3	4	5	6	8
Dimensions A.....Inches	7 3/4	8 3/8	10 1/8	13 1/4	17 1/4	20 1/2	23 1/4	30 1/4
Dimensions B.....Inches	3 1/8	3 3/8	4	5 3/8	7	8 3/8	10 1/8	12 3/8
Dimensions C.....Inches	2	2 1/4	2 9/16	3 1/2	4 3/16	4 3/4	5 7/16	6 3/4
Size of Vent.....Inches	1 1/4	1 1/2	2	3	4	4	4	6
Fig. 163—Black.....Each	$2.40	$2.70	$3.30	$5.50	$9.75	$24.50	$33.50	$65.00
Galvanized.....Each	4.20	4.70	5.75	9.50	17.00	43.00	58.00	115.00

Running Traps can be furnished with Cleanout when so ordered.
Inlet and Outlet of Running Traps are tapped, pitched ¼ inch to the foot.

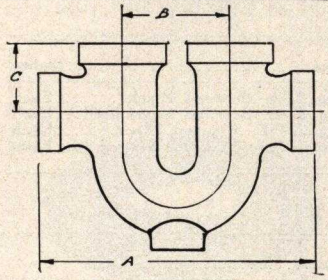


Fig. 163—Running Traps

Dimensions subject to a slight variation and change without notice

WALWORTH COMPANY NEW YORK, N. Y.

Executive Offices—60 East 42nd Street
Plants at Boston, Mass.; Kewanee, Ill.; Greensburg, Pa.; Attalla, Ala., East St. Louis, Ill.
Distributors in Principal Cities of the World
WALWORTH INTERNATIONAL CO., NEW YORK, Foreign Representatives

Walworth Drive Well Points

(Galvanized Wrought Pipe)
Covered with Brass Wire Gauze and Perforated Brass Jacket

Price List

Trade Number	Inside Diameter Inches	*Length of Point Inches	Length of Jacket Inches	Openings Aggregate Square Inches	Per Dozen Number of Gauze 60	70	80
90	1¼	24	18	20	$ 36.00	$ 44.00	$ 52.00
94	1¼	30	24	26½	46.00	55.00	64.00
98	1¼	36	30	33	56.00	66.00	76.00
100	1¼	42	36	39½	66.00	77.00	88.00
136	1½	24	18	22½	48.00	57.00	65.00
140	1½	30	24	30	60.00	70.00	80.00
148	1½	48	42	52½	96.00	111.00	125.00
160	2	24	18	26	75.00	85.00	94.00
164	2	30	24	35	90.00	101.00	112.00
168	2	36	30	43½	105.00	108.00	130.00
170	2	42	36	52½	120.00	134.00	148.00
172	2	48	42	62	135.00	151.00	166.00
176	2	60	54	78½	165.00	184.00	202.00

*Length of point as given in above tables is length of pipe exclusive of tapered point.
Please order by trade number, stating mesh of gauze.



Fig. 9101 Brass Jacket Point



Fig. 9101 Without Brass Jacket

Malleable Iron Drive Caps

Size.....Inches	1	1¼	1½	2	2½	3
Fig. 9321.....Each	$0.26	$0.20	$0.24	$0.44	$1.00	$1.25



Fig. 9321—Drive Cap

Walworth Iron Body Foot Valves

With Strainer—Leather Disc—Or Brass Seat Ring and Brass Disc

Fig. 2251—Long Pattern

Size.....Inches	¾	1	1¼	1½	2	2½
Fig. 2251—Screwed, Black.....Each	$1.15	$1.30	$1.40	$1.90	$2.40	$3.30
Fig. 2252—Screwed, Galvanized.....Each	1.75	1.95	2.10	2.85	3.60	4.95
Fig. 2251F—Flanged, Black.....Each	.....	.....	.....	.....	3.50	4.50
Fig. 2252F—Flanged, Galvanized.....Each	.....	.....	.....	.....	5.25	6.75

Size.....Inches	3	3½	4	5	6	8
Fig. 2251—Screwed, Black.....Each	$3.90	$5.60	$7.30	$11.25	$14.75	$41.00
Fig. 2252—Screwed, Galvanized.....Each	5.85	8.40	10.95	16.90	22.15	61.50
Fig. 2251F—Flanged, Black.....Each	5.75	7.50	9.50	14.00	17.50	45.00
Fig. 2252F—Flanged, Galvanized.....Each	8.65	11.25	14.25	21.00	26.25	67.50

Sizes ¾-inch to 4-inch, inclusive, furnished with brass disc, leather faced. Sizes 5-inch and larger with cast iron disc, leather faced. Also furnished all bronze. Prices on application.



Fig. 2245



Fig. 2251

Price List Foot Valves with Leather Disc

Size.....Inches	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12	14	16
Fig. 2245—Screwed, Black.....Each	$1.15	$1.30	$1.40	$1.90	$2.40	$3.30	$3.90	$5.60	$7.30	$11.25	$14.75	$41.00	$64.00	$100.00	.....	.....
Fig. 2246—Screwed, Galvanized...Each	1.75	2.00	2.10	2.85	3.60	5.00	5.75	8.50	11.00	16.75	22.00	62.00	110.00	155.00	.....	.....
Fig. 2245F—Flanged, Black.....Each	.....	.....	.....	.....	3.50	4.50	5.75	7.50	9.50	14.00	17.50	45.00	70.00	112.00	$150.00	$200.00
Fig. 2246F—Flanged, Galvanized..Each	.....	.....	.....	.....	5.50	7.00	9.00	12.00	15.00	22.00	27.00	72.00	120.00	170.00	.....	.....

Price List Foot Valves with Brass Seat Ring and Disc

Size.....Inches	2	3	4	5	6	8	10
Fig. 2249—Screwed, Black.....Each	$10.00	$12.00	$14.00	$15.00	$18.00	$45.00	$80.00
Fig. 2249F—Flanged, Black.....Each	11.00	13.00	15.00	16.00	20.00	48.00	85.00

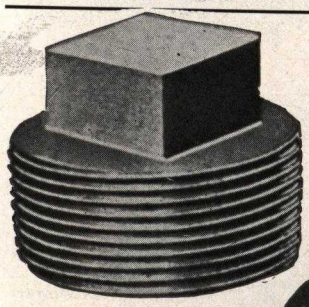
For Walco Wrenches, see Page 832

J. P. WARD FOUNDRY, INC., BLOSSBURG, PA.

REPRESENTATIVES

Eric I. King Company, 844 Rush St., Chicago, Ill.
W. H. Gilbert Sales Company, 617 American Bank Building, Los Angeles, Cal.
Jack Scharff, 154 Nassau Street, New York, N. Y.
M. Love, 2401-15 Chestnut Street, Philadelphia, Pa.
George W. Smith Company, 348 Penn Place, Pittsburgh, Pa.
E. S. Freeman, 207 A Street, Boston, Mass.

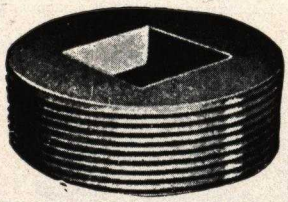
Plugs



Regular Plug
Fig. 1—Cast Iron
Fig. 33—Brass



Fig. 5-C. I.—Radiator Plug



Countersunk Plug
Fig. 3—Cast Iron
Fig. 35—Brass

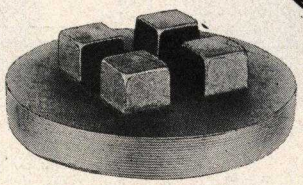
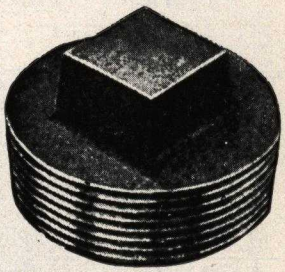


Fig. 4-C-1—Bar Plugs
Regular or Solid



Solid Plug
Fig. 2—Cast Iron
Fig. 34—Brass

Fig.	Size Pipe.....Inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	9	10	12	14	15	16
1	Regular Plugs, C. I.	.02	.02	.02	.02	.03	.04	.05	.07	.10	.18	.25	.38	.42	.65	.88	1.20	1.85	2.75	3.25	3.75	5.00	12.50	12.50	.....
	Left Hand Plugs, C. I.	...	...	...	.04	.06	.08	.09	.11	.15	.27	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	Tapped for Air Cock	...	...	...	...	.12	.15	.20	.25	.30	.45	....	....	....	....	....	....	....	....	....	....	....	....	....	....
2	Solid Plugs, C. I.	.02	.02	.02	.04	.05	.08	.09	.11	.15	.27	.38	.57	.63	1.00	1.35	1.80	2.80	4.15	5.00	5.75	7.50	18.75	22.50	.....
3	Countersunk Plugs, C. I.	...	...	...	.04	.05	.08	.09	.11	.15	.30	.40	.92	1.10	1.60	2.00	3.50	....	....	....	....	....	....	....	.....
4	Bar Plugs, C. I.:																								
	Regular	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	....	2.75	3.25	3.75	5.00	12.50	12.50	15.00
	Solid	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	....	4.15	5.00	5.75	7.50	18.75	22.50	.....
5	Radiator Plugs, C. I.	...	...	...	...	...	...	...	.14	.20	...	...	...	...	...	...	...	....	....	....	....	....	....	....	.....
33	Regular Plugs, Brass	.08	.10	.12	.15	.20	.30	.45	.60	.95	1.50	2.25	3.75	5.00	....	8.00	12.00	....	....	....	....	....	....	....	.....
34	Solid Plugs, Brass	...	...	.18	.22	.30	.45	.80	1.20	1.90	3.00	4.50	7.50	10.00	....	15.00	23.00	....	....	....	....	....	....	....	.....
35	Countersunk Plugs, Brass.	...	...	...	.22	.30	.45	.65	.90	1.40	1.50	2.25	3.75	5.00	....	8.00	12.00	....	....	....	....	....	....	....	.....

For list prices of Galvanized Regular, solid and countersunk plugs, double above lists.

Bushings

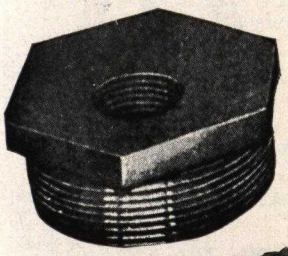


Fig. 6—Cast Iron
Eccentric
Bushing

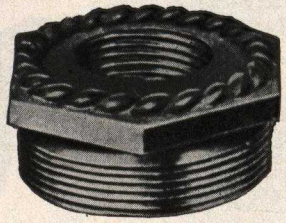
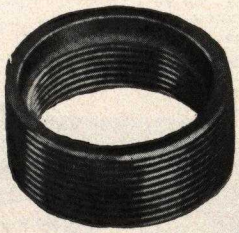


Fig. 9—Cast Iron Radiator Bushing



Flush Bushings
Fig. 8—Cast Iron
Fig. 37—Brass

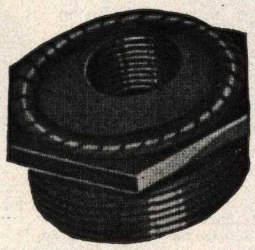
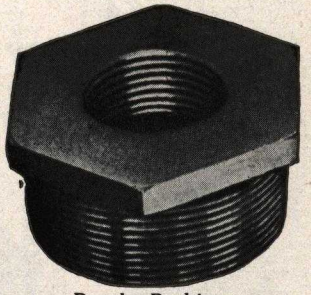


Fig. 10-C. I.—Eccentric Radiator Bushing



Regular Bushings
Fig. 7—Cast Iron
Fig. 36—Brass

Fig.	Size Pipe.....Inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	9	10	12	14	15	16
6	Eccentric Bushings, C. I.	...	...	...	...	...	.22	.25	.27	.42	.60	.80	1.00	...	1.85	2.50	...	...	...	...	...	...	...	...
7	Regular Bushings, C. I.	.04	.04	.04	.05	.06	.07	.09	.14	.21	.30	.40	.50	.75	.93	1.25	1.87	2.75	3.25	3.75	5.00	12.50	15.00	22.00
7	L. H. Regular Bushings, C. I.	...	...	...	...	.09	.10	.12	.16	.28	...	...	...	...	...	...	...	...	...	...	...	...	...	.....
8	Flush Bushings, Galvanized.	...	.12	.14	.17	.20	.25	.33	.48	.72	1.05	1.80	2.25	3.15	3.90	5.63	8.40	12.37	14.62	16.87	22.50	56.25	67.50	.....
8	Flush Bushings, C. I.	...	.08	.09	.11	.13	.17	.22	.32	.48	.70	1.20	1.50	2.10	2.60	3.75	5.60	8.25	9.75	11.25	15.00	37.50	45.00	.....
9	Radiator Bushings, C. I.	...	...	...	...	...	...	.14	.21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.....
16	Eccentric Rad. Bush., C. I.	...	...	...	...	...	...	.25	.27	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.....
36	Regular Bushings, Brass	.10	.12	.15	.22	.35	.50	.70	1.00	1.50	2.50	3.75	5.00	....	12.00	18.00	....	....	....	....	....	....	....	.....
37	Flush Bushings, Brass	.12	.15	.19	.27	.44	.62	.87	1.25	1.85	3.10	4.75	6.25	....	....	....	....	....	....	....	....	....	....	.....

For Galvanized Regular Bushings, double above lists.

Companion Flanges

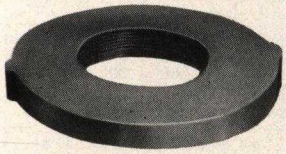


Fig. 59—Faced Only

Sizes	Price Faced, Each	Price Faced and Drilled, Each	Sizes	Price Faced, Each	Price Faced and Drilled, Each
1½x5	.65	.90	4x 9	1.35	1.80
2 x6	.75	1.00	5x10	1.60	2.05
2½x7	.85	1.10	6x11	2.00	2.50
3x7½	.95	1.25	8x13½	3.10	3.80



Fig. 59—Faced and Drilled

See Following Page



Fig. 11

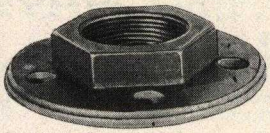


Fig. 12



Fig. 13

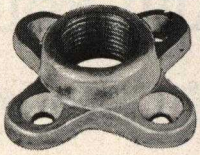


Fig. 14

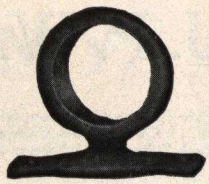


Fig. 18

Figure 11—Cast Iron Floor Flanges

Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each
¼x2½	$0.10	¾x3	$0.15	⅜x4	$0.22	¾x4½	$0.25	1¼x5	$0.30	2½x5½	$0.40	1¼x6½	$0.60
⅜x2½	.10	1 x3	.15	½x4	.22	1 x4½	.25	1½x5	.30	1 x6	.42	1½x6½	.55
½x2½	.10	⅜x3½	.15	¾x4	.22	1¼x4½	.25	2 x5	.35	1¼x6	.40	2 x6½	.50
¾x2½	.15	½x3½	.15	1 x4	.16	1½x4½	.22	1 x5½	.40	1½x6	.40	2½x6½	.50
¼x3	.10	¾x3½	.15	1¼x4	.16	½x5	.35	1¼x5½	.40	2 x6	.42	3 x6½	.50
⅜x3	.10	1 x3½	.15	1½x4	.22	¾x5	.30	1½x5½	.40	2½x6	.42	3 x7	.62
½x3	.10	1¼x3½	.16	½x4½	.25	1 x5	.30	2 x5½	.35	3 x6	.50	4 x8	1.50

Fig. 12 Floor Flanges Hexagon Head

Size Inches	Price Each
1 x3¾	$0.15
1¼x4	.16
1½x4½	.22
2 x5	.35

Any size up to 4 inches made on request.

Fig. 13 Oval Flanges with Hexagon Heads

Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each
½	$0.14	1½	$0.31	4	$0.90
¾	.18	2	.44	4½	1.40
1	.22	2½	.50	5	1.70
1¼	.24	3	.65	6	2.00
		3½	.75		

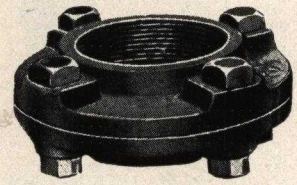
For list prices of Galvanized Flanges double above lists.

Fig. 14 Square Flanges

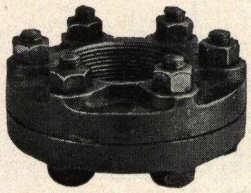
Size Inches	Price Each	Size Inches	Price Each
½	$0.14	1¼	$0.20
¾	.15	1½	.28
1	.15	2	.30

Fig. 18 Plumbers Pipe Hanger

Size Pipe, Inches	Price per 100	
	Plain	Galvanized
⅜	$ 5.00	$ 6.50
½	5.00	6.50
¾	5.80	7.00
1	7.75	9.00
1¼	10.00	12.00
1½	14.00	16.00
2	22.00	25.00



Figs. 20 and 38



Figs. 19 and 49

Standard Flange Unions 125 Pounds

Fig. 20—Cast Iron **Fig. 38—Brass**

Size Pipe, Inches	Price Each		Size Pipe, Inches	Price Each	
	Cast Iron	Brass		Cast Iron	Brass
½	$ 0.40	$ 4.00	5	$ 3.15	$35.00
¾	.46	4.50	6	3.95	45.00
1	.52	5.00	7	5.50	.....
1¼	.64	5.50	8	7.00	.....
1½	.78	7.00	9	10.00	.....
2	1.00	9.00	10	11.50	.....
2½	1.25	11.50	12	16.00	.....
3	1.50	15.00	14	28.00	.....
3½	1.80	18.00	15	35.00	.....
4	2.10	22.00	16	60.00	.....
4½	2.70	27.00			

Extra Heavy Flange Unions 250 Pounds

Fig. 19—Cast Iron **Fig. 49—Brass**

Size Pipe, Inches	Price Each		Size Pipe, Inches	Price Each	
	Cast Iron	Brass		Cast Iron	Brass
¾	.....	$ 7.50	3	$ 2.25	$24.00
1	.....	8.50	3½	2.70	27.00
1¼	.....	11.00	4	3.15	30.00
1½	.....	13.00	4½	4.00	37.00
2	$ 1.50	16.00	5	4.75	48.00
2½	1.90	18.00	6	6.00	60.00

For list prices of Galvanized Flange Unions, double above list.

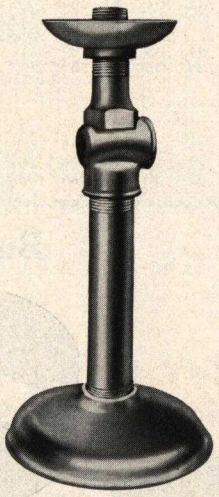


Fig. 60 Range Boiler Stand

Each.....$0.55

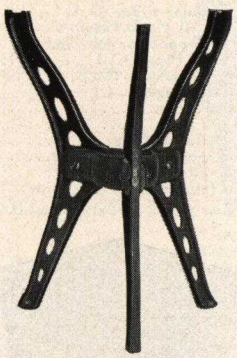


Fig. 21 Adjustable Tripod Range Boiler Stands

(12-inch, 14-inch, 16-inch)

Each.....$0.35



Fig. 16 Sink Couplings Tapped for Wrought Iron Pipe

	1¼-inch	1½-inch
Per dozen, net.....	$0.86	$0.95

For list prices of galvanized sink couplings double above lists.



Fig. 22 Cast Iron Traps

Size, 2-inch

Each.....$0.50

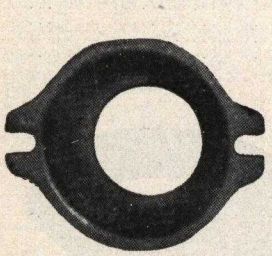


Fig. 17 Sink Couplings for Lead Pipe

Per dozen.....$0.40 Net

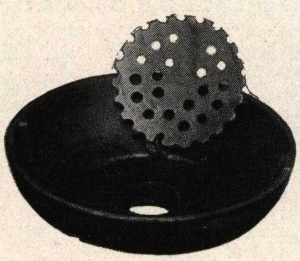


Fig. 15 Refrigerator Drains

Each.....$0.30

For list price of Galvanized Sink Couplings double the above list.



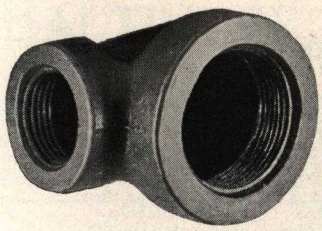
Figs. 32 and 48 Pipe Caps

Figs. 32 and 48 Pipe Caps

Size.....Inches	⅜	½	¾	1
Fig. 32—Cast Iron.....	$0.03	$0.03	$0.05	$0.08
Fig. 32—Galvanized.....	.04	.05	.09	.12
Fig. 48—Brass.....	.16	.20	.30	.42

Size.....Inches	1¼	1½	2	2½
Fig. 32—Cast Iron.....	$0.12	$0.16	$0.24	$0.38
Fig. 32—Galvanized.....	.16	.22	.31	.51
Fig. 48—Brass.....	.60	.80	1.25	2.50

Size.....Inches	3	3½	4	5	6
Fig. 32—Cast Iron....	$0.54	$0.75	$0.87	$1.20	$1.55
Fig. 32—Galvanized..	.77	1.05	1.45	2.33	3.10
Fig. 48—Brass.....	3.50	5.50	7.00	.....	.....



Figs. 24 and 40



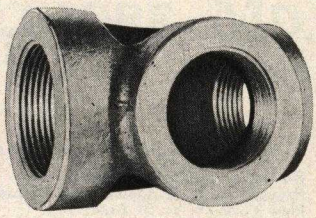
Figs. 23, 25, 39 and 41



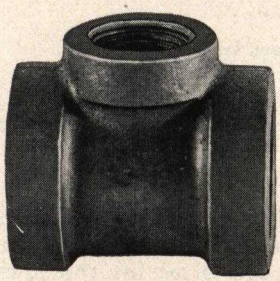
Figs. 26 and 42



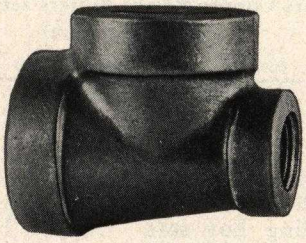
Figs. 27 and 43



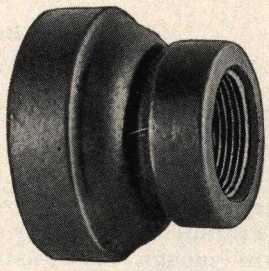
Figs. 30 and 46



Figs. 28 and 44



Figs. 29 and 45



Figs. 31 and 47

Standard Cast Iron Fittings

Size, Inches	⅜	½	¾	1	1¼	1½	2	2½	3	4
Fig. 23—Straight Elbows, 90 degrees	$0.05	$0.06	$0.08	$0.10½	$0.16	$0.20	$0.28	$0.50	$0.75	$1.20
Fig. 24—Reducing Elbows, 90 degrees	.....	.....	.09	.12	.18	.23	.32	.60	.85	1.40
Fig. 25—R. & L. Elbows, 90 degrees	.06	.07	.09	.12	.18	.23	.32	.60	.85	1.45
Fig. 26—Elbows, 45 degrees	.....	.07	.10	.12	.19	.24	.34	.60	.90	1.45
Fig. 27—Straight Tees	.08	.09	.12	.15	.23	.29	.41	.73	1.10	1.75
Fig. 28—Reducing Tees, on outlet	.....	.....	.14	.17	.27	.33	.47	.83	1.25	2.00
Fig. 29—Reducing Tees, on run	.....	.....	.....	.17	.27	.33	.47	.83	1.25	2.00
Fig. 30—Reducing Tees, on run and outlet	.....	.....	.14	.17	.27	.33	.47	.83	1.25	2.00
Fig. 31—Line Reducers	.....	.....	.....	.....	.22	.28	.43	.....	.....	.....

For list of galvanized fittings, double above lists.

Extra Heavy Brass Fittings

Cast Iron Pattern

Size, Inches	⅜	½	¾	1	1¼	1½	2	2½	3	4
Fig. 39—Straight Elbows, 90 degrees	$0.45	$0.65	$1.00	$1.50	$2.25	$3.00	$4.50	$ 8.00	$11.25	$22.00
Fig. 40—Reducing Elbows, 90 degrees	.....	.....	1.20	1.80	2.60	3.50	5.25	9.00	13.00	25.00
Fig. 41—R. & L. Elbows, 90 degrees	.45	.75	1.20	1.80	2.60	3.50	5.25	9.00	13.00	.....
Fig. 42—Elbows, 45 degrees	.....	.75	1.10	1.65	2.50	3.25	4.50	8.00	11.25	22.00
Fig. 43—Straight Tees	.60	.90	1.35	2.00	3.00	4.00	6.00	10.75	15.00	30.00
Fig. 44—Reducing Tees, on outlet	.....	.....	1.55	2.30	3.50	4.50	6.75	12.00	17.00	35.00
Fig. 45—Reducing Tees, on run	.....	.....	.....	2.30	3.50	4.50	6.75	12.00	17.00	35.00
Fig. 46—Reducing Tees, on run and outlet	.....	.....	1.55	2.30	3.50	4.50	6.75	12.00	17.00	35.00
Fig. 47—Line Reducers	.....	.....	.....	.....	2.25	3.00	4.50	.....	.....	.....



Fig. 50



Fig. 51

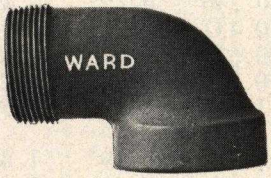


Fig. 52



Fig. 53



Fig. 54



Fig. 55



Fig. 56



Fig. 57



Fig. 58

Cast Iron Drainage Fittings

Size, Inches	Fig. 50 90° Ells Short Turn		Fig. 51 45° Elbows Short Turn		Fig. 52 90° Street Elbows		Fig. 53 45° Street Elbows		Fig. 54 22½° Elbows		Fig. 55 Tees		Fig. 56 90° Long Turn TY		Fig. 57 90° TY Short Turn		Fig. 58 45° Y Branch	
	Black	Galv.	Black	Galv.	Black	Galv.	Black	Galv.	Black	Galv.	Black	Galv.	Black	Galv.	Black	Galv.	Black	Galv.
1¼	$0.30	$0.52	$0.30	$0.52	.....	.....	.....	.....	.....	.....	$0.45	$0.80	.....	.....	$0.45	$0.80	.....	.....
1½	.38	.67	.38	.67	$0.40	$0.70	$0.40	$0.70	$0.38	$0.67	.55	1.00	$0.70	$1.22	.57	1.00	$0.65	$1.15
2	.57	1.00	.57	1.00	.60	1.10	.....	.....	.....	.....	.80	1.40	1.10	1.95	.85	1.50	.95	1.65
2x1½	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.90	1.60	1.20	2.10	.95	1.65	1.05	1.85

THE AMERICAN BRASS COMPANY

General Offices—Waterbury, Conn.

Mills and Factories: Ansonia, Conn., Torrington, Conn., Waterbury, Conn., Buffalo, N. Y., Detroit, Mich., Kenosha, Wis.

Boston, Mass., 140 Federal Street.
Providence, R. I., 131 Dorrance Street.
New York, N. Y., 25 Broadway.
Newark, N. J., Military Park Building.
Philadelphia, Pa., Architects Building.
Washington, D. C., 810 Eighteenth St.
Atlanta, Ga., Healey Building.
Pittsburgh, Pa., Oliver Building.
Cleveland, Ohio, Union Trust Building.
Dayton, Ohio, Third National Building.
Cincinnati, Ohio, Chamber of Commerce Building.
Chicago, Ill., 1326 W. Washington Blvd.
St. Louis, Mo., Cotton Belt Building.
Houston, Texas, Post-Dispatch Building.
San Francisco, Cal., Russ Building.

Canadian Mill: Anaconda American Brass Limited, New Toronto, Ontario.

For Brown Brothers Copper Range Boilers see Manufacturers Index

ANACONDA
from mine to consumer

Anaconda Brass Pipe is guaranteed physically perfect and structurally sound. It is semi-annealed and seamless—hard enough to withstand threading but soft enough to remove internal strains. Every length carries the Anaconda name rolled in the metal every twelve inches—a permanent means of identification.

The American Brass Company recommends Anaconda 67 Brass Pipe for use where ordinary water conditions prevail and Anaconda 85 Red-Brass Pipe where waters are highly corrosive. The Company's Technical Department will gladly cooperate in determining the character of local water supplies. Anaconda Seamless Copper Tubes in suitable sizes for threadless fittings are offered for service lines and general plumbing.

Anaconda Pipe is manufactured and stocked at the Waterbury, Conn., Torrington, Conn., Buffalo, N. Y., Detroit, Mich., and Kenosha, Wis., mills of The American Brass Company, and is available from leading distributors in all parts of the country, assuring a prompt and dependable nation-wide service.

Weights of Anaconda 67 Brass, 85 Red-Brass and Copper Pipe

Standard Pipe Sizes—Regular

Standard Pipe Size	Diameter Inches		Wall Thickness Inches	Pounds per Foot			Feet per Pound			Extras Over Base Price Cents per Pound
	Outside	Inside		67 Brass	85 Red-Brass	Copper	67 Brass	85 Red-Brass	Copper	
1/8	0.405	0.281	0.0620	0.246	0.253	0.259	4.07	3.95	3.86	10
1/4	0.540	0.375	0.0825	0.437	0.450	0.460	2.29	2.22	2.17	7
3/8	0.675	0.494	0.905	0.612	0.630	0.643	1.63	1.59	1.56	2
1/2	0.840	0.625	0.1075	0.911	0.938	0.957	1.10	1.07	1.04	1
3/4	1.050	0.822	0.1140	1.24	1.27	1.30	0.806	0.787	0.769	Base
1	1.315	1.062	0.1265	1.74	1.79	1.83	0.575	0.559	0.546	Base
1 1/4	1.660	1.368	0.1460	2.56	2.63	2.69	0.391	0.380	0.372	Base
1 1/2	1.900	1.600	0.1500	3.04	3.13	3.20	0.329	0.319	0.313	Base
2	2.375	2.062	0.1565	4.02	4.14	4.23	0.249	0.242	0.236	Base
2 1/2	2.875	2.500	0.1875	5.83	6.00	6.14	0.172	0.167	0.163	Base
3	3.500	3.062	0.2190	8.31	8.56	8.75	0.120	0.117	0.114	Base
3 1/2	4.000	3.500	0.2500	10.85	11.17	11.41	0.092	0.090	0.088	Base
4	4.500	4.000	0.2500	12.29	12.66	12.94	0.081	0.079	0.077	Base
4 1/2	5.000	4.500	0.2500	13.74	14.15	14.46	0.073	0.071	0.069	3
5	5.563	5.062	0.2505	15.40	15.85	16.21	0.065	0.063	0.062	4
6	6.625	6.125	0.2500	18.44	18.99	19.41	0.054	0.053	0.052	5
7	7.625	7.062	0.2815	23.92	24.63	25.17	0.042	0.041	0.040	6
8	8.625	8.000	0.3125	30.05	30.95	31.63	0.033	0.032	0.032	8
9	9.625	8.937	0.3440	36.94	38.03	38.83	0.027	0.026	0.026	10
10	10.750	10.019	0.3655	43.91	45.20	46.22	0.023	0.022	0.022	13

General Products

Copper, Brass, Bronze and Nickel Silver in every variety of Sheets, Wire, Rods, Tubes and Special Shapes. Price Lists and Tables of Weights furnished upon application.

BALTIMORE TUBE COMPANY, INC. BALTIMORE, MD.

General Offices and Mills—Oslend and Wicomico Streets

Branches and Agencies

Chicago, Ill. Detroit, Mich. New York, N. Y. San Francisco, Cal. Cincinnati, Ohio Los Angeles, Cal. Ogden, Utah Boston, Mass. Montreal, Canada Philadelphia, Pa. Seattle, Wash. Denver, Colo. New Orleans, La. Pittsburgh, Pa. Toledo, Ohio

BALTIMORE BRASS AND COPPER TUBE CO. INC. PRODUCTS

Brass and Copper Pipe

Iron Pipe Sizes
Extras Over Base Price

1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	9	10 inch
7	6	2	1	Base Price									3	4	5	6	8	10	13

Weight per Lineal Foot of Baltimore Brass and Copper Pipe "Iron Pipe Sizes"

Iron Pipe Size Inches	Outside Diameter	Regular				Extra Heavy			
		Inside Diameter	Brass	Red Brass	Copper	Inside Diameter	Brass	Red Brass	Copper
1/8	.405	.281	.246	.253	.259	.205	.353	.363	.371
1/4	.540	.375	.437	.450	.459	.294	.593	.611	.624
3/8	.675	.494	.612	.630	.644	.421	.805	.829	.847
1/2	.840	.625	.911	.938	.958	.542	1.191	1.23	1.253
3/4	1.050	.822	1.235	1.27	1.298	.736	1.622	1.67	1.706
1	1.315	1.062	1.740	1.79	1.829	.951	2.386	2.46	2.509
1 1/4	1.660	1.368	2.557	2.63	2.689	1.272	3.291	3.39	3.460
1 1/2	1.900	1.600	3.037	3.13	3.193	1.494	3.986	4.10	4.191
2	2.375	2.062	4.017	4.14	4.224	1.933	5.508	5.67	5.791
2 1/2	2.875	2.500	5.830	6.00	6.130	2.315	8.407	8.65	8.839
3	3.500	3.062	8.314	8.56	8.741	2.892	11.24	11.57	11.82
3 1/2	4.000	3.500	10.85	11.17	11.41	3.358	13.66	14.07	14.37
4	4.500	4.000	12.29	12.65	12.93	3.818	16.41	16.89	17.25
4 1/2	5.000	4.500	13.74	14.14	14.44	4.250	20.07	20.66	21.10
5	5.563	5.062	15.40	15.85	16.19	4.813	22.51	23.17	23.67
6	6.625	6.125	18.44	18.98	19.39	5.750	31.32	32.21	32.93
7	7.625	7.062	23.92	24.62	25.15	6.625	41.22	42.43	43.34
8	8.625	8.000	30.05	30.94	31.60	7.625	47.00	48 39	49.42
9	9.625	8.937	36.94	38.02	38.84	.....	.....	.....	.....
10	10.750	10.019	43.91	45.22	46.17	.....	.....	.....	.....

Baltimore Copper Water Service Tubes—Flexible Non-Rusting
20 feet and shorter in straight lengths only—over 20 feet in coils only

Nominal Size Inches	Outside Diameter Inches	Wall Thickness Inches	Pounds per Lineal Foot	Calculated Bursting Pressure Lbs. Square Inch		Nominal Size Inches	Outside Diameter Inches	Wall Thickness Inches	Pounds per Lineal Foot	Calculated Bursting Pressure Lbs. Square Inch	
				Hard	Soft					Hard	Soft
3/8	.500	.049	.269	9800	7300	2 1/2	1.625	.095	2.92	3100	2300
1/2	.625	.049	.344	7400	5600	3	3.125	.109	4.00	3100	2300
3/4	.875	.065	.641	7000	5300	3 1/2	3.625	.120	5.12	2800	2100
1	1.125	.065	.839	5200	3900	4	4.125	.134	6.51	2800	2100
1 1/4	1.375	.065	1.04	4200	3100	5	5.125	.148	8.96	2500	1800
1 1/2	1.625	.072	1.36	3900	2900	6	6.125	.165	11.96	2300	1700
2	2.125	.083	2.06	3400	2500	.....	.....	.....	.....	.....	.....

Sheet Brass and Bronze. Roll and Strip Copper. Seamless Brass and Copper Tubing. Admiralty and Muntz Metal Condenser Tubes. Bus Bar Copper.

SPANG, CHALFANT & CO., INC.

Manufacturers of Welded and Seamless Steel Pipe

General Offices
Clark Building, PITTSBURGH, PA.

Welded Mills: Etna, Pa., and Sharpsburg, Pa.

Seamless Mill: Ambridge, Pa.

Sales Offices

Pittsburgh, Pa., Clark Bldg.
St. Louis, Mo., Boatmen's Bank Bldg.

San Francisco, Calif., Russ Bldg.
New York, N. Y., Vanderbilt Bldg.
Tulsa, Okla., Exchange Bank Bldg.

Los Angeles, Calif., Transamerica Bldg.
Chicago, Ill., McCormick Bldg.

Sales Representatives

Boston, Mass.

Dallas, Tex.

Products and Facilities

Spang-Chalfant Welded and Seamless Tubular Steel Products, including Standard, Extra Strong and Double Extra Strong Pipe, both black and galvanized, for all purposes and Spang "Copper-Clude" Pipe.

This company is the oldest pipe mill operating in America and has a record of many years of satisfactory service to users of tubular products of all kinds and for all purposes. Its present facilities include plants for the manufacture of butt weld ⅛ to 3-in. inside diameter, lap weld 1¼-in. inside diameter to 24-in. outside diameter, inclusive, and seamless 1¼-in. inside diameter to 16-in. outside diameter, inclusive, pipe.

Distribution

"Spang" Pipe is nationally distributed through leading jobbers in every important industrial center throughout the country. These distributors carry ample stocks of standard sizes both black and galvanized for every requirement.

Inspection

Every piece of pipe, tubing or casing is carefully inspected during process of manufacture and is tested and inspected after all the operations are finished. All imperfections that are possible to detect are therefore found and eliminated.

Uniform Quality

The special analysis steel used in the manufacture of "Spang" Pipe combines those highly desirable qualities of softness and ductility for easy shaping, threading and bending with an unusual toughness and strength.

Threading

The dies in our threading and coupling machines are regularly checked and inspected. All "Spang" threaded pipe is, therefore, noted for its clean cut, true threads and its accuracy of pitch and taper. This assures good tight joints at all times.

Galvanizing

All galvanized pipe is processed by the most improved modern methods, assuring a uniform protective coating, both inside and outside, that will not flake off.

Chemical and Physical Properties

Data	Bessemer Steel	Open Hearth Steel	Rephosphorized Steel
Chemical Properties			
Manganese	.30 to .60	.30 to .60	.30 to .60
Phosphorus, not over	.11	.045	.08
Phosphorus, not less than	.....	.....	.045
Sulphur, not over	.065	.06	.06
Physical Properties*			
Tensile strength, lbs. per sq. in.	50,000	45,000	48,000
Yield point, lbs. per sq. in.	30,000	25,000	28,000
Elongation in 8 in.	20%	22%	20%

*The material shall conform to the minimum requirements as to tensile properties as shown here.

Guarantee

We guarantee to replace such goods as prove defective, or allow credit for same, at our option. No claim for damages beyond the price of the tubular goods will be considered and no charge for labor or expense of repair will be allowed.

Identification of Pipe



"Spang" Welded Pipe

All welded pipe in sizes ½ in. and larger is marked with the name "Spang" rolled into every length during the process of manufacture.



"Standard" Seamless Pipe

"Standard" seamless pipe is marked with a designating mark "Standard" stamped into the finished product.



Spang "Copper-Clude" Pipe

Spang "Copper-Clude" is a new trade-name for steel pipe which has a percentage of pure copper added. This pipe is soft, easy to work, but highly resistant to corrosion, making it ideal for exposed piping jobs where severe atmospheric conditions are present (alternate wet and dry, etc.).

To identify—Spang Black "Copper-Clude" is solidly enameled copper tan color; Galvanized "Copper-Clude" carries two bright copper tan color stripes the entire length of each piece of pipe. Prices and complete information on request.

Bundling Schedule

Pipe Inches	Standard			Extra Heavy			Double Extra Heavy		
	Number Pieces	Ft.	Wt. Lbs.	Number Pieces	Ft.	Wt. Lbs.	Number Pieces	Ft.	Wt. Lbs.
⅛	30	500	122	30	14–16	141	.....	.....	.....
¼	24	440	137	24	15–17	205	.....	.....	.....
⅜	18	350	200	18	15–17	226	12	14–16	200
½	12	240	205	12	19–21	254	7	16–18	205
¾	7	140	160	7	19–21	200	5	16–18	220
1	5	105	180	5	19–21	220	3	18–20	200
1¼	3	61	140	3	19–21	180	3	18–20	285
1½	3	62	169	3	19–21	220	3	18–20	352

Information of Value when Specifying or Ordering

The following information, some of which pertains to the tables below, will be found of value when specifying or ordering pipe.

All weights given in tables are limited to three decimal points and are figured on the basis of 1 cu. in. of steel weighing .2833 lb.

All material will be cut to length, when so ordered, with extreme variation not exceeding 1/8 in. over or under, unless otherwise arranged. All pipe is threaded to American Standard (Briggs) working gages as made by Pratt & Whitney Co.

Pipe and tubing are known and spoken of by their nominal inside diameters from 1/8 to 12 in., inclusive and by their nominal outside diameters above 12 in. inside diameter. Where pipe and tubing, heavier than standard, are specified the extra thickness is on the inside reducing the inside diameter of the pipe. All dimensions are subject to change without notice.

Where 1/8 to 12-in. pipe is to be finished with threads and couplings and where orders specify quantity in lineal feet, random lengths fitted with threads both ends and coupling one end will be shipped and measurement charge from end to end, including coupling. Where cut lengths are specified order must state whether plain ends, threads only or threads and couplings are required. Sizes from 14-in. up are customarily held in stock in plain ends and orders should specify whether plain ends, threads only or threads and couplings are desired.

When figuring on lineal feet of pipe for long lines allowance should be made, on pipe fitted with threads and couplings, for the distance pipe is screwed into coupling, when assembling, usually one-half the length of the coupling.

"Spang" Standard Pipe—Black and Galvanized

All Weights and Dimensions are Nominal

Size	List Price per Foot	Diameters, Inches		Thickness Inches	Weight per Foot, Lbs.		Threads per Inch	Test Pressure, Lbs.		Couplings		
		External	Internal		Plain Ends	Threads and Couplings		Butt	Lap	Diameter Inches	Length Inches	Weight Lbs.
1/8	$0.05 1/2	.405	.269	.068	.244	.245	27	700	.....	.562	7/8	.030
1/4	.06	.540	.364	.088	.424	.425	18	700	.....	.685	1	.044
3/8	.06	.675	.493	.091	.567	.568	18	700	.....	.848	1 1/8	.072
1/2	.08 1/2	.840	.622	.109	.850	.852	14	700	.....	1.024	1 3/8	.118
3/4	.11 1/2	1.050	.824	.113	1.130	1.134	14	700	.....	1.281	1 5/8	.214
1	.17	1.315	1.049	.133	1.678	1.684	11 1/2	700	.....	1.576	1 7/8	.350
1 1/4	.23	1.660	1.380	.140	2.272	2.281	11 1/2	700	1000	1.950	2 1/8	.546
1 1/2	.27 1/2	1.900	1.610	.145	2.717	2.731	11 1/2	700	1000	2.218	2 3/8	.758
2	.37	2.375	2.067	.154	3.652	3.678	11 1/2	700	1000	2.760	2 5/8	1.233
2 1/2	.58 1/2	2.875	2.469	.203	5.793	5.819	8	800	1000	3.276	2 7/8	1.755
3	.76 1/2	3.500	3.068	.216	7.575	7.616	8	800	1000	3.948	3 1/8	2.549
3 1/2	.92	4.000	3.548	.226	9.109	9.202	8	.....	1000	4.591	3 5/8	4.328
4	1.09	4.500	4.026	.237	10.790	10.889	8	.....	1000	5.091	3 5/8	5.410
*4 1/2	1.27	5.000	4.506	.247	12.538	12.642	8	.....	.....	5.591	3 5/8	5.984
5	1.48	5.563	5.047	.258	14.617	14.810	8	.....	1000	6.296	4 1/8	9.158
6	1.92	6.625	6.065	.280	18.974	19.185	8	.....	1000	7.358	4 1/8	10.823
*7	2.38	7.625	7.023	.301	23.544	23.769	8	.....	.....	8.358	4 1/8	12.390
8	2.50	8.625	8.071	.277	24.696	25.000	8	.....	800	9.420	4 5/8	15.843
8	2.88	8.625	7.981	.322	28.554	28.809	8	.....	1000	9.420	4 5/8	15.843
*9	3.45	9.625	8.941	.342	33.907	34.188	8	.....	.....	10.420	5 1/8	19.752
10	3.20	10.750	10.192	.279	31.201	32.000	8	.....	600	11.721	6 1/8	33.923
10	3.50	10.750	10.136	.307	34.240	35.000	8	.....	800	11.721	6 1/8	33.923
10	4.12	10.750	10.020	.365	40.483	41.132	8	.....	900	11.721	6 1/8	33.923
*11	4.63	11.750	11.000	.375	45.557	46.247	8	.....	.....	12.721	6 1/8	36.970
12	4.50	12.750	12.090	.330	43.773	45.000	8	.....	600	13.958	6 1/8	48.266
12	5.07	12.750	12.000	.375	49.562	50.706	8	.....	800	13.958	6 1/8	48.266

*These sizes were eliminated from general production September 1, 1927.

Permissible variation in weight is 5 per cent above and 5 per cent below. Furnished with threads and couplings and in random lengths unless otherwise ordered. All weights given in pounds. All dimensions given in inches. For cut lengths, an extra charge will be made above random lengths. For pipe smoothed on the inside, known as plugged and reamed, an extra charge will be made above standard pipe. For Galvanized or Coated Pipe, an extra charge will be made above Black. Taper of thread is 3/4-inch diameter per foot length for all sizes.

"Spang" Extra Strong and Double Extra Strong Pipe—Black and Galvanized

All Weights and Dimensions are Nominal

Size Inches	List Price per Foot	Diameters Inches		Thickness Inches	Weight per Foot Plain Ends Pounds	Test Pressure Pounds	
		External	Internal			Butt	Lap
Extra Strong							
1/8	$0.12	.405	.215	.095	.314	700	.....
1/4	.07 1/2	.540	.302	.119	.535	700	.....
3/8	.07 1/2	.675	.423	.126	.738	700	.....
1/2	.11	.840	.546	.147	1.087	700	.....
3/4	.15	1.050	.742	.154	1.473	700	.....
1	.22	1.315	.957	.179	2.171	700	.....
1 1/4	.30	1.660	1.278	.191	2.996	1500	3000
1 1/2	.36 1/2	1.900	1.500	.200	3.631	1500	3000
2	.50 1/2	2.375	1.939	.218	5.022	1500	2800
2 1/2	.77	2.875	2.323	.276	7.661	1500	2800
3	1.03	3.500	2.900	.300	10.252	1500	2500
3 1/2	1.25	4.000	3.364	.318	12.505	.....	2500
4	1.50	4.500	3.826	.337	14.983	.....	2200
*4 1/2	1.80	5.000	4.290	.355	17.611	.....	1800
5	2.08	5.563	4.813	.375	20.778	.....	2000
6	2.86	6.625	5.761	.432	28.573	.....	2000
*7	3.81	7.625	6.625	.500	38.048	.....	1500
8	4.34	8.625	7.625	.500	43.388	.....	1700
*9	4.90	9.625	8.625	.500	48.728	.....	1500
10	5.48	10.750	9.750	.500	54.735	.....	1400
Extra Strong (Continued)							
*11	$6.10	11.750	10.750	.500	60.075	.....	1100
12	6.55	12.750	11.750	.500	65.415	.....	1100
Double Extra Strong							
1/2	$0.32	.840	252	.294	1.714	700	.....
3/4	.35	1.050	.434	.308	2.440	700	.....
1	.37	1.315	.599	.358	3.659	700	.....
1 1/4	.52 1/2	1.660	.896	.382	5.214	2200	.....
1 1/2	.65	1.900	1.100	.400	6.408	2200	3000
2	.91	2.375	1.503	.436	9.029	2200	3000
2 1/2	1.37	2.875	1.771	.552	13.695	2200	3000
3	1.86	3.500	2.300	.600	18.583	.....	3000
3 1/2	2.30	4.000	2.728	.636	22.850	.....	2500
4	2.76	4.500	3.152	.674	27.541	.....	2500
*4 1/2	3.26	5.000	3.580	.710	32.530	.....	2000
5	3.86	5.563	4.063	.750	38.552	.....	2000
6	5.32	6.625	4.897	.864	53.160	.....	2000
*7	6.35	7.625	5.875	.875	63.079	.....	2000
8	7.25	8.625	6.875	.875	72.424	.....	2000

*These sizes eliminated from general production September 1, 1927.

Permissible variation in weight is 5% above and 5% below for extra strong pipe; 10% above and 10% below for double extra strong pipe.

Furnished with plain ends and in random lengths, unless otherwise ordered. Random length of extra strong and double extra strong pipe is considered to be 12 to 22 ft.; we have the privilege, however, of supplying not exceeding 5% of total order in lengths from 6 to 12 ft. For pipe fitted with threads and couplings, an extra charge will be made above plain ends. For cut lengths, an extra charge will be made above random lengths. For galvanized, or coated pipe, an extra charge will be made above black. Taper of threads (when threaded) is 3/4 inch diameter per foot length for all sizes.

FRETZ-MOON TUBE CO., INC. BUTLER, PA.



Full Standard Weight Steam, Gas and Water Pipe

Fretz-Moon Pipe—well known to the Plumbing and Heating Trades for its high quality, uniformity and ease of installation—is made from selected mild steel skelp by a patented "continuous" process which eliminates uncertainties and produces pipe of uniform size, weld and quality.

The threads are unusually clean, sharp and free-running. Fretz-Moon Pipe cuts and threads easily and cleanly on the job. It is extremely ductile, therefore easy to bend. The smooth, tight weld will not open, even under severe abuse. The protective zinc coating on galvanized pipe will not scale or flake under bending.

Fretz-Moon Pipe is made in all the usual sizes and can be supplied either black or hot galvanized. All Fretz-Moon Pipe is rigidly inspected during and after manufacture, and tested hydrostatically to insure perfect welds.

Mill Practice

Measurement of Pipe

On orders calling for commercial sizes of pipe which are finished with threads and couplings, in sizes ⅛-inch to 6-inch inclusive, and where orders specify quantity in lineal feet, it is understood that random lengths fitted with threads both ends and coupling one end will be shipped and the measurement is charged from end to end, that is overall including coupling.

If cut lengths of any sizes are ordered, instructions must appear on the face of the order whether plain ends, threads only or threads and couplings are required. The mill then cuts the pipe proper to the length specified for plain ends and threads only, but if cut lengths with threads and couplings are specified, the practice is the same with the exception that the couplings are charged separately, whether they are shipped loose or screwed on the pipe.

In figuring on lineal feet of pipe required for laying long lines, customer should make allowance when figuring on pipe fitted with threads and couplings for the distance that pipe is screwed into coupling when assembling in the field—the customary allowance being one-half the length of the coupling.

Size Inches	List Price Per Foot	Nominal Weight Per Foot	Diameters External	Diameters Internal	Pieces Per Bundle	Average Feet Per Bundle	Average Weight Per Bundle	Threads Per Inch
Standard Full Weight Pipe Black and Galvanized								
⅛	$.05½	.245	.405	.269	31	512	125	27
¼	.06	.425	.540	.364	24	480	204	18
⅜	.06	.568	.675	.493	18	360	204	18
½	.08½	.852	.840	.622	12	240	204	14
¾	.11½	1.134	1.050	.824	7	140	159	14
1	.17	1.684	1.315	1.049	5	100	168	11½
1¼	.23	2.281	1.660	1.380	3	60	137	11½
1½	.27½	2.731	1.900	1.610	3	60	164	11½
2	.37	3.678	2.375	2.067	.....	.....	.....	11½
2½	.58½	5.819	2.875	2.469	.....	.....	.....	8
3	.76½	7.616	3.500	3.068	.....	.....	.....	8
3½	.92	9.202	4.000	3.548	.....	.....	.....	8
4	1.09	10.889	4.500	4.026	.....	.....	.....	8
5	1.48	14.810	5.563	5.047	.....	.....	.....	8
6	1.92	19.185	6.625	6.065	.....	.....	.....	8
8	2.50	25.000	8.625	8.071	.....	.....	.....	8
8	2.88	28.809	8.625	7.981	.....	.....	.....	8
10	3.20	32.000	10.750	10.192	.....	.....	.....	8
10	3.50	35.000	10.750	10.136	.....	.....	.....	8
10	4.12	41.132	10.750	10.020	.....	.....	.....	8
11	4.63	46.247	11.750	11.000	.....	.....	.....	8
12	4.50	45.000	12.750	12.090	.....	.....	.....	8
12	5.07	50.706	12.750	12.000	.....	.....	.....	8
Extra Heavy Pipe Black and Galvanized								
⅛	$.12	.314	.405	.215	30	500	157	.....
¼	.07½	.535	.540	.302	24	480	257	.....
⅜	.07½	.738	.675	.423	18	360	266	.....
½	.11	1.087	.840	.546	12	240	261	.....
¾	.15	1.473	1.050	.742	7	140	206	.....
1	.22	2.171	1.315	.957	5	100	217	.....
1¼	.30	2.996	1.660	1.278	3	60	180	.....
1½	.36½	3.631	1.900	1.500	3	60	218	.....
2	.50½	5.022	2.375	1.939	.....	.....	.....	.....
2½	.77	7.661	2.875	2.323	.....	.....	.....	.....
3	1.03	10.252	3.500	2.900	.....	.....	.....	.....
3½	1.25	12.505	4.000	3.364	.....	.....	.....	.....
4	1.50	14.983	4.500	3.826	.....	.....	.....	.....
5	2.08	20.778	5.563	4.813	.....	.....	.....	.....
6	2.86	28.573	6.625	5.761	.....	.....	.....	.....
8	4.34	43.388	8.625	7.625	.....	.....	.....	.....
10	5.48	54.735	10.750	9.750	.....	.....	.....	.....
11	6.10	60.075	11.750	10.750	.....	.....	.....	.....
12	6.55	65.415	12.750	11.750	.....	.....	.....	.....

The permissible variation in weight is 5 per cent over or under.
Weights and dimensions are nominal.
Furnished with threads and couplings and in random lengths unless otherwise ordered.
Random lengths are from 15 to 22 feet.
Cut lengths at special prices.

Approximate Number of Feet of Standard Pipe in One Net Ton

Size, In.	Ft.	Size, In.	Ft.	Size, In.	Ft.
⅛	8,197	1½	735	6	105
¼	4,717	2	546	8—25 lbs. per ft.	80
⅜	3,527	2½	345	8—29 lbs. per ft.	69
½	2,353	3	263	10—35 lbs. per ft.	58
¾	1,770	3½	217	10—41 lbs. per ft.	49
1	1,190	4	185	12—45 lbs. per ft.	45
1¼	881	5	137		

Fretz-Moon Pipe

Full Standard Weight Jobbers' Car Load

Fretz-Moon Pipe	Black	Galv.	Fretz-Moon Extra Strong Plain Ends	Black	Galv.
⅛-in. Butt	45	19½	⅛-in. Butt	41	24½
¼ & ⅜-in. Butt.	51	25½	¼ & ⅜-in. Butt.	47	30½
½-in. Butt	56	42½	½-in. Butt	53	42½
¾-in. Butt	60	48½	¾-in. Butt	58	47½
1 to 3-in. Butt.	62	50½	1 to 1½-in. Butt.	60	49½
2-in. Lap	55	43½	2 to 3-in. Butt.	61	50½
2½ to 6-in. Lap.	59	47½	2-in. Lap	53	42½
			2½ to 4-in. Lap.	57	46½

E. M. DART MFG. CO. PROVIDENCE, R. I.

General Distributors
THE FAIRBANKS CO.,
393-399 Lafayette St., New York, N. Y.

Thurbers Avenue—Eddy Street

Canadian Factory
Dart Union Co., Ltd.
Toronto, Canada

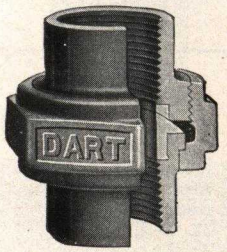


Fig. 0832—Female

Dart Union Fittings (Bronze-To-Bronze)

Dart Unions are made from heavy high-grade malleable iron castings, have extra strong shoulders on the swivel ends and in the nuts and TWO BRONZE SEATS which are accurately machined and carefully ground, giving double protection to the joint.

Recommended for 300-lb. w.s.p. sizes 1/8-inch to 2-inch, inclusive; 2½-inch to 4-inch—250 lb. w.s.p., where temperature is not in excess of 450 degrees Fahrenheit.

Dart Female Union

(This style sent when not otherwise specified)

Size.....Inches	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	2	2½	3	3½	4
Fig. 0832—Plain.....List	$0.38	$0.30	$0.40	$0.50	$0.60	$0.80	$1.20	$1.60	$2.00	$4.00	$6.00	$9.00	$13.50
Fig. 0832—Galvanized.....List	.48	.38	.51	.64	.77	1.02	1.53	2.04	2.55	5.10	7.64	11.47	17.20

Adapted to high or low pressure; for steam, gas, air or water.



Fig. 0834
Female

Union Elbow

This type is adapted to use wherever a union is desired near an elbow. It gives a neat, close connection, saving both labor and fittings.

Size.....Inches	1/4	3/8	1/2	3/4	1	1¼	1½	2	2½	3
Fig. 0834—Plain.....List	$0.52	$0.70	$0.87	$1.05	$1.40	$2.10	$2.80	$3.49	$5.59	$ 8.38
Fig. 0834—Galvanized...List	.68	.91	1.14	1.36	1.82	2.73	3.63	4.54	7.27	10.90
Fig. 0835—Plain.....List	.52	.70	.87	1.05	1.40	2.10	2.80	3.49	5.59	8.38
Fig. 0835—Galvanized...List	.68	.91	1.14	1.36	1.82	2.73	3.63	4.54	7.27	10.90



Fig. 0835
Male and Female

Tee Union on the Outlet

Figure 0836—Female. Figure 0837—Male and Female.

Size.....Inches	1/4	3/8	1/2	3/4	1	1¼	1½	2
Fig. 0836—Plain.....List	$0.58	$0.77	$0.96	$1.15	$1.54	$2.31	$3.08	$3.84
Fig. 0836—Galvanized.....List	.75	1.00	1.25	1.50	2.00	3.00	4.00	5.00
Fig. 0837—Plain.....List	.58	.77	.96	1.15	1.54	2.31	3.08	3.84
Fig. 0837—Galvanized.....List	.75	1.00	1.25	1.50	2.00	3.00	4.00	5.00

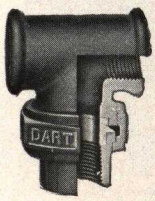


Fig. 0836
Female



Fig. 0837
Male and Female

Tee Union on the Run

Figure 0838—Female. Figure 0839—Male and Female.

Size.....Inches	1/4	3/8	1/2	3/4	1	1¼	1½	2
Fig. 0838—Plain.....List	$0.58	$0.77	$0.96	$1.15	$1.54	$2.31	$3.08	$3.84
Fig. 0838—Galvanized.....List	.75	1.00	1.25	1.50	2.00	3.00	4.00	5.00
Fig. 0839—Plain.....List	.58	.77	.96	1.15	1.54	2.31	3.08	3.84
Fig. 0839—Glavanized.....List	.75	1.00	1.25	1.50	2.00	3.00	4.00	5.00



Fig. 0838
Female

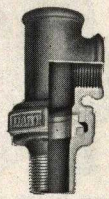


Fig. 0839
Male and Female

Male and Female Union—Air Pump Union

Use these fittings instead of a union and a nipple.

Size.....Inches	1/4	3/8	1/2	3/4	1	1¼	1½	2	2½	3
Fig. 0840—Plain.....List	$0.44	$0.58	$0.73	$0.87	$1.16	$1.75	$2.33	$2.91	$4.66	$6.99
Fig. 0840—Galvanized....List	.57	.76	.95	1.14	1.51	2.27	3.03	3.79	6.06	9.09

Size.....Inches	¾x1	1x1¼	1¼x1½	1½x2
Fig. 0841—Plain.....List	$1.05	$1.40	$2.10	$2.80
Fig. 0841—Galvanized.....List	1.36	1.82	2.73	3.63

All Iron Union

For use on lines such as acid, chemicals, etc., where the bronze seated union is not desirable.

Size.....Inches	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	2
Fig. 0844—Plain.....List	$0.38	$0.30	$0.40	$0.50	$0.60	$0.80	$1.20	$1.60	$2.00



Fig. 0840
Male and Female



Fig. 0841
Air Pump

Regular Flange Union—Cast Iron

Size.....Inches	½	¾	1	1¼	1½	2	2½	3	3½
Fig. 0833—Plain.....List	$0.88	$0.96	$1.28	$1.93	$2.57	$3.21	$5.13	$7.69	$9.62
Fig. 0833—Galvanized.....List	1.19	1.30	1.73	2.60	3.46	4.33	6.92	10.39	12.98

Size.....Inches	4	4½	5	6	7	8	9	10	12
Fig. 0833—Plain.....List	$12.02	$14.03	$16.03	$20.04	$24.04	$28.85	$34.62	$46.16	$73.73
Fig. 0833—Galvanized.....List	16.23	18.93	21.64	27.05	32.46	38.95	46.74	62.32	99.53

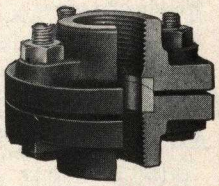
All flanges furnished with bolts and nuts. Flanges made with special threads when required.



Fig. 0844
All Iron

Extra Heavy Flange Union—Cast Iron

Size.....Inches	1½	2	2½	3	4	6	8
Fig. 0833—Plain.....List	$3.42	$4.27	$6.84	$10.26	$16.03	$26.71	$53.37
Fig. 0833—Galvanized.....List	4.62	5.77	9.23	13.85	21.64	36.06	72.12

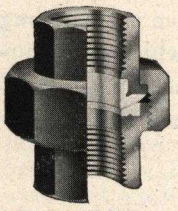

Fig. 0833

See Page 405 for Fairbanks Valves

KING UNION COMPANY, HILLSGROVE, R. I.

Representatives:

Bridgeport, Conn., George A. Cornwall, 143 Buena Vista Road.
Chicago, Ill., Chas. W. Badger, 122 S. Michigan Ave.
Kansas City, Mo., C. H. French, 5722 Michigan Ave.
Los Angeles, Cal., Fletcher-Weil Co., 1923 East 7th St.
Memphis, Tenn., G. M. Baird & Co., 564 Randolph Bldg.
New York, N. Y., J. L. Stulsaft, 501 Fifth Ave.
Philadelphia, Pa., Geo. E. Kitson Co., 5939 Haverford Ave.



Diamond Union
Malleable Iron
2 Bronze Seats

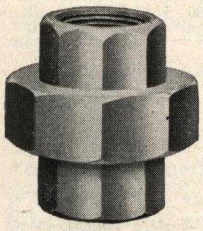
Ground Joint Unions

Diamond Unions

Made from the best grade of Malleable Iron with two bronze seats. The bronze seats are inserted by a special process which locks the seats and eliminates all chances of leaking. Every union air tested under water.

List Prices

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Black.....	$0.30	$0.40	$0.50	$0.60	$0.80	$1.20	$1.60	$2.00	$3.20	$4.80
Galvanized.....	.45	.60	.75	.90	1.20	1.80	2.40	3.00	4.80	7.20



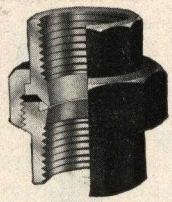
Ace All Brass Union
300 Pounds
Working Pressure

Ace Unions

Rough Brass union, octagon shaped, recommended for 300 pounds working pressure. No gasket or ring required.

List Prices

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
All Brass.....	$0.40	$0.50	$0.65	$0.85	$1.15	$1.60	$2.25	$2.70	$4.00	$7.50	$11.50



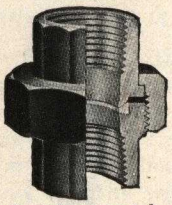
Queen Union with
Inserted Brass Ring
250 Pounds
Working Pressure

Queen Unions

A medium weight Malleable Iron union with inserted brass ring made with a ball joint and recommended for 250 pounds working pressure.

List Prices

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Black.....	$0.30	$0.30	$0.40	$0.50	$0.60	$0.80	$1.20	$1.60	$2.00	$3.20	$4.80
Galvanized.....	.45	.45	.60	.75	.90	1.20	1.80	2.40	3.00	4.80	7.20



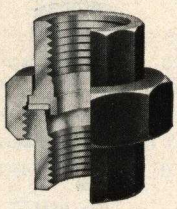
Jack Union with
Inserted Brass Ring
300 Pounds
Working Pressure

Jack Unions

A heavy type Malleable Iron union with inserted brass ring made with a ball joint and recommended for 300 pounds working pressure.

List Prices

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Black.....	$0.30	$0.30	$0.40	$0.50	$0.60	$0.80	$1.20	$1.60	$2.00	$3.20	$4.80
Galvanized.....	.45	.45	.60	.75	.90	1.20	1.80	2.40	3.00	4.80	7.20



Common Union
200 Pounds
Working Pressure

Common Unions

A Malleable Iron union equipped with a gasket made of special material insuring a perfect and permanent fit. Recommended for 200 pounds working pressure.

List Prices

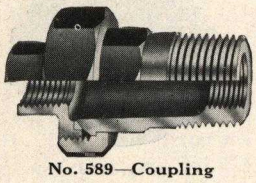
Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Black.....	$0.18	$0.20	$0.22	$0.27	$0.33	$0.46	$0.58	$0.75	$1.55	$2.10
Galvanized.....	.27	.30	.33	.40	.50	.70	.90	1.15	2.35	3.15

Galvanized Circulating Boiler Unions

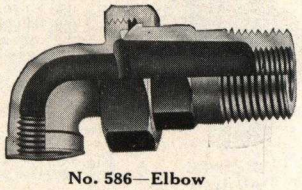
Made from Malleable Iron with an inserted brass ring and selling off the Washer List.

List Prices

Size.....Inches	½x½x1	¾x½x1	¾x¾x1
List Price.....Each	$0.60	$0.75	$0.75



No. 589—Coupling



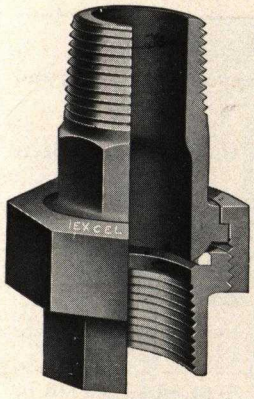
No. 586—Elbow

PROVIDENCE FITTINGS CO. LOCKPORT, N. Y.

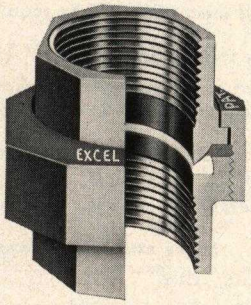
Main Office and Complete Plant

EXCEL—UNIONS—*MASTER*

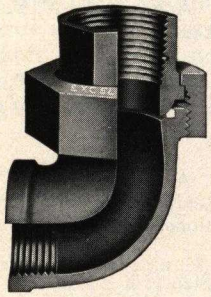
Excel Malleable Iron, Brass Seated Unions—Elbows—Tees



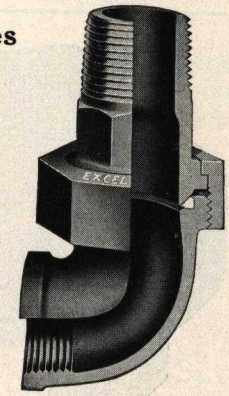
P-22



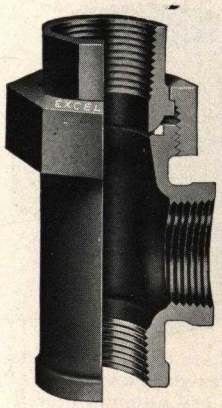
P-21



P-23



P-24



P-25

P-22, Male and Female Union. When substituted for an All-Female Union and nipple makes a shorter connection and saves an extra joint.

P-21, All-Female Union.—Made with heavy shoulders and ball joint, insuring satisfaction.

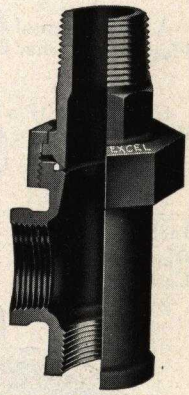
P-23, 90-deg. Female Elbow. Takes the place of a straight union, nipple and an elbow, saves two pipe joints and a great deal of time.

P-24, 90-deg. Male and Female Elbow. Combines all the features of Female Union Elbows and Male and Female Unions.

P-25, Female Union Tee, with Union on the run. Corresponds to a straight union, nipple and tee.

P-26, Male and Female Union Tee, with Union on the run.

Excel Unions are made from high grade, Air Refined Malleable Iron, cast in our own foundry. Workmanship is of the highest grade. American Standard Taper Pipe Threads are used. Each union is carefully inspected. Excel Unions are easy to install; make up tight and stay tight (no gasket required); have octagonal ends; can be applied with any kind of a wrench; can be used over and over again. Excel Unions conform to Federal Specification No. 393 for 250-pound unions. Listed as standard by Underwriters Laboratories.

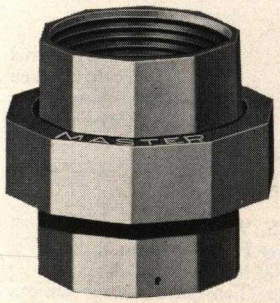


P-26

Sizes and List Prices

Size, Inches		⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
P-21—All-Female Unions	Black	$0.30	$0.30	$0.40	$0.50	$0.60	$0.80	$1.20	$1.60	$2.00	$3.20	$4.80
	Galv.	.45	.45	.60	.75	.90	1.20	1.80	2.40	3.00	4.80	7.20
P-22—Male and Female Unions	Black	.....	.38	.50	.62	.75	1.00	1.50	2.00	2.50	4.00	.....
	Galv.	.....	.53	.70	.87	1.05	1.40	2.10	2.80	3.50	5.60	.....
P-23—90-degree Elbows—Female	Black	.....	.45	.60	.75	.90	1.20	1.80	2.40	3.00	.....	.....
	Galv.	.....	.60	.80	1.00	1.20	1.60	2.40	3.20	4.00	.....	.....
P-24—90-degree Elbows—Male and Female	Black	.....	.45	.60	.75	.90	1.20	1.80	2.40	3.00	.....	.....
	Galv.	.....	.60	.80	1.00	1.20	1.60	2.40	3.20	4.00	.....	.....
P-25—Union Tees—Female or Male	Black	.....	.50	.66	.82	1.00	1.32	1.98	2.64	.....	.....	.....
	Galv.	.....	.67	.88	1.10	1.32	1.75	2.65	3.50	.....	.....	.....
P-26—Union Tees—Male and Female	Black	.....	.50	.66	.82	1.00	1.32	1.98	2.64	.....	.....	.....
	Galv.	.....	.67	.88	1.10	1.32	1.75	2.65	3.50	.....	.....	.....

The MASTER Union



Master Union

A new Commercial Standard Union designed to conform to the U. S. Department of Commerce, Bureau of Standards Specifications CS7-29 as accepted by the different trade associations, manufacturers, and U. S. Government. Suited for general use. It is a standard weight Union recommended for use on standard weight pipe—specification does not require the pressure rating to be shown on the nut.

Made of Air Refined, Malleable Iron with brass to iron ball joint and is strictly a quality product, the result of high-grade materials, careful workmanship and a rigid inspection. Listed as standard by Underwriters Laboratories.

Price List Master Unions

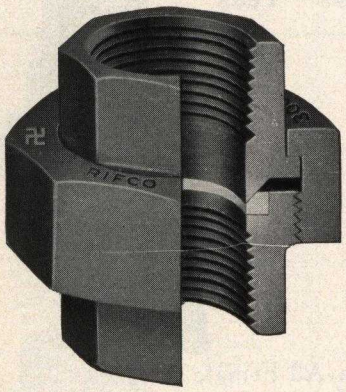
Size, Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Black	$0.30	$0.30	$0.40	$0.50	$0.60	$0.80	$1.20	$1.60	$2.00	$3.20	$4.80
Galvanized	.45	.45	.60	.75	.90	1.20	1.80	2.40	3.00	4.80	7.20

Samples will be gladly furnished upon request.

RHODE ISLAND FITTING CO. HILLSGROVE, R. I.

BRANCHES

New York Office—39 Courtlandt St., New York City, N. Y.
Chicago Office—230 No. Canal Street, Chicago, Ill.
Los Angeles Office—Wilcox Building, Los Angeles, Calif.
Fort Worth Office—430 South Lake Street, Fort Worth, Texas.
San Francisco Office—58 Federal Street, San Francisco, Calif.
Seattle Office—302 Smith Tower Annex., Seattle, Wash.



The "Cub" Union

A 200 lb. S. W. P. Union that will meet 99% of the requirements of the average plumbing and heating job.

The "Rhode Island" Union

A 250 lb. S. W. P. Union, standard for twenty years. Approved by Fire Underwriters. Meets Federal Government and Navy Department Specifications.

The "Rifco" Union

A 300 lb. S. W. P. extra heavy Union. A rugged product for use wherever high pressures and temperatures are encountered. Liberally meets Fire Underwriters and Federal Master Specifications.

Sizes and List Prices

Size	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Black	$0.30	$0.30	$0.40	$0.50	$0.60	$0.80	$1.20	$1.60	$2.00	$3.20	$4.80	$ 8.00	$10.00
Galvanized	.45	.45	.60	.75	.90	1.20	1.80	2.40	3.00	4.80	7.20	12.00	15.00

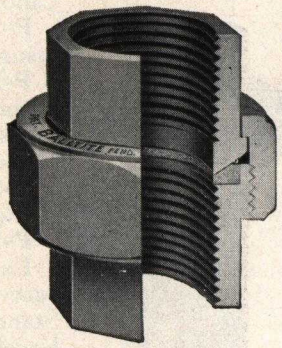
The "Balltite" Union

A new design of Union with a Ball Type of seat of Asbestos Composition. An improvement over the Flat Face Washer Union in that it will seat perfectly even though pipes are slightly out of alignment.

The "Gasket Union"

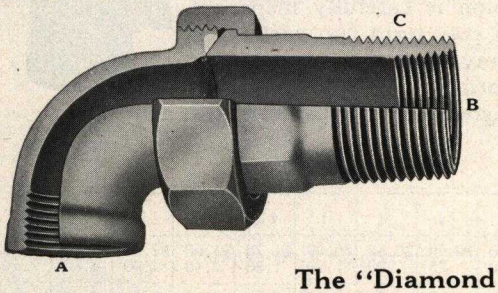
Equipped with a washer of Vulcabeston Steam Packing that is impervious to moisture, gasoline or oil. Will not dry up or blow out.

Both the above Unions are recommended for steam working pressures up to 200 pounds.



Sizes and List Prices

Inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Black	$0.20	$0.22	$0.27	$0.33	$0.46	$0.58	$0.75
Cadmium Plated	.30	.33	.40	.50	.70	.90	1.15



"Boiler Fittings"

Our new Boiler Fittings have a ground joint brass seat and are much superior to the flat face washer type, as they permit of tight joints even though pipes are out of line. Furnished in both bent and straight types; Galvanized or Cadmium Plated An improved fitting that costs no more than the ordinary flat face washer type. We recommend the Cadmium Plated as all the working parts, including threads, are rust-proofed.

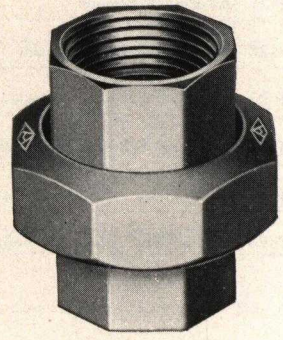
A	B	C	
1/2	x 1/2	x 1-inch	$0.60
3/4	x 1/2	x 1-inch	.75
3/4	x 3/4	x 1-inch	.75

The "Diamond A" Forged Brass

Forged from extruded bar stock under 250 to 500 tons hydraulic pressure. They are stronger than the pipe, possessing a tensile strength in excess of 60,000 lbs. per square inch. Beautiful smooth finish. Recommended for 250 lbs. S. W. P.

The "R. I. Red" Cast Brass

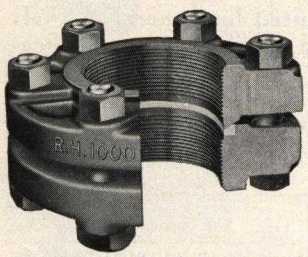
The R. I. RED made of Red Bronze to our own formula. Particularly adapted for installations where corrosive conditions are encountered. Recommended for 200 lbs. S. W. P.



Sizes and List Prices

Inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Rough	$0.40	$0.50	$0.65	$0.85	$1.15	$1.60	$2.25	$2.70	$4.00	$ 7.50	$11.50
Semi-Finished	.45	.55	.75	.95	1.30	1.75	2.50	3.00	4.50	8.25	12.75
Finished	.50	.60	.85	1.05	1.40	1.90	2.75	3.25	5.00	9.00	14.30
Nickel Plated	.60	.72	1.02	1.26	1.68	2.28	3.30	3.90	6.00	10.80	16.80

Flange Unions



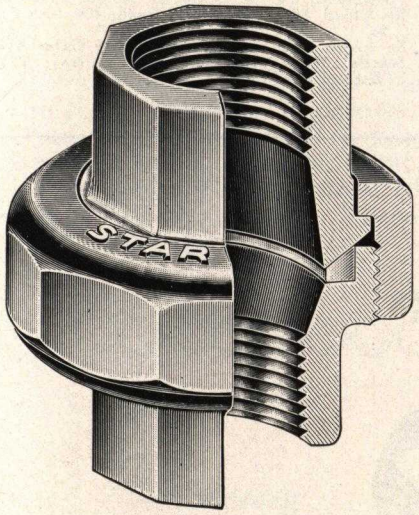
"R-3-P" malleable iron, for 350 lbs. S. W. P.
ground joint, brass seat, Three part Flange Union.
"R N" malleable iron, 500 lbs. S. W. P.
ground joint, brass seat, Two part Flange Union.
"R H" malleable iron, 1000 lbs. S. W. P.
ground joint, brass seat, Two part Flange Union.
"LINE PIPE" malleable iron, 250 lbs. S. W. P.
gasket type, Two Part Flange Union.
"RIFCO NAVY" cast iron, 250 lbs. S. W. P.
ground joint, brass seat, Two Part Flange Union.
"R S SPEED" cast iron, 1000 lbs. S. W. P.
ground joint, brass seat, Two part Flange Union.

Rhode Island Products are Always Dependable

Prices on application.

STAR MANUFACTURING CO., INC. PROVIDENCE, R. I.

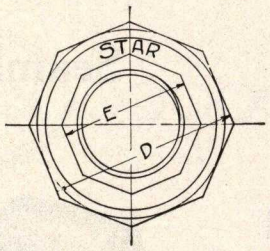
Main Office and Works—71-77 Willard Avenue

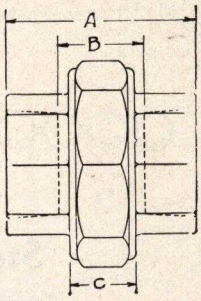


The Star Union

Star Unions are built of the finest obtainable grades of malleable and bronze. The heavy pipe-ends and the rugged nut are octagonal in shape, giving adequate strength and pressure-resistance—with easy wrenching. The seat-rings are permanently set and cannot loosen.

Expertly designed, carefully made, and rigidly inspected, the Star is unreservedly guaranteed for 300 pounds w. p. A first-quality product for first - quality work in steam, water, air, gas, oil. Ten sizes, ¼-3 inches, inc., black and galvanized. Ask for samples.





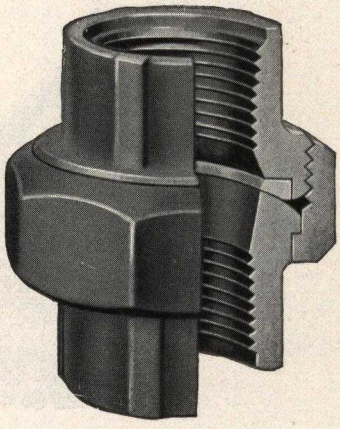
List Prices and Specifications

Size, Inches	Black Each	Galvanized Each	Weight per 100 Black	Weight per 100 Galv.	A	*B	C	D	E
¼	$0.30	$0.45	25	26	1 5/8	1 1/8	9/16	1 5/16	11/16
⅜	.40	.60	40½	42	1 15/16	1 1/8	11/16	1 9/16	15/16
½	.50	.75	50½	52	2	1 1/8	¾	1 ¾	1
¾	.60	.90	83	86	2 5/16	1 5/16	13/16	2 1/8	1 5/16
1	.80	1.20	112	115	2 ½	1 3/8	⅞	2 7/16	1 5/8
1¼	1.20	1.80	153	158	2 5/8	1 3/8	15/16	2 13/16	1 15/16
1½	1.60	2.40	187	193	2 7/8	1 5/8	1	3 1/8	2 3/16
2	2.00	3.00	305	315	3 ¼	3	1 1/16	3 13/16	2 11/16
2½	3.20	4.80	486	501	3 3/8	2 3/8	1 ¼	4 7/16	3 ¼
3	4.80	7.20	680	698	3 7/8	2 1/8	1 3/8	5 5/16	3 7/8

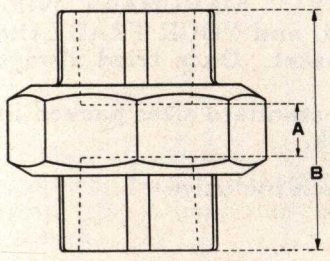
*B—End to End of Pipe.

The Crescent Union

The Crescent Union is made of materials identical with those in the Star, and by the same modern methods. Lighter in weight than the Star, it is specially adapted to the requirements of the plumbing trades. The bronze-to-iron ball-seat is accurately fitted, insuring a permanently pressure-proof joint. All threads are full, clean, and sharp—cut to standard gauges on automatic equipment only. The Crescent is furnished in eight sizes, ¼-2 inches, inc., black and galvanized. Samples gladly sent.



Prices, Weights and Principal Dimensions



Pipe Sizes Inches	Prices Black	Prices Galvanized	Weights per 100 Black	Weights per 100 Galv.	A	B
¼	$0.30	$0.45	18½	20	11/16	1 3/8
⅜	.40	.60	26½	28	11/16	1 ½
½	.50	.75	39	42	11/16	1 11/16
¾	.60	.90	57	60	¾	2
1	.80	1.20	72	77	13/16	2 3/16
1¼	1.20	1.80	111	115	1 5/16	2 7/16
1½	1.60	2.40	160	164	1 5/16	2 5/8
2	2.00	3.00	259	263	1 ¾	3 1/16

A—End to End of Pipe.

WHEELING MACHINE PRODUCTS CO. WHEELING, W. VA.

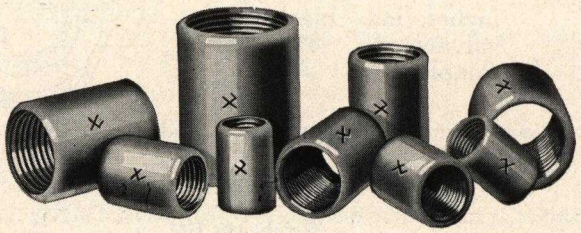
Main Office—20th and Main Streets

District Representatives

Bridgeport, Conn., W. J. Hammett, 84 Merchant St.
Chicago, Ill., Harry A. Jay, 720 No. Michigan Ave.
Cleveland, Ohio, W. J. Oberndorf, 6007 Euclid Ave.
Detroit, Mich., L. T. Delavigne, 20429 Litchfield Rd.
Fort Worth, Texas, V. G. Morgenstern P. O. Box, 755
Long Island City, N. Y., Kessel & Muller, 47 30th St.
Los Angeles, Cal., Fletcher-Weil Company, 1923 E. 7th St.
Portsmouth, Va., W. D. Carter, 209 No. Elm Ave.
St. Cloud, Minn., B. F. Edelbach, 409 10th St., So.
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Seamless Pipe Couplings

Steel



Brass

XL Seamless Pipe Couplings are bored from solid bar. There are no seams to burst open. XL Couplings will withstand a Hydrostatic test of over 10,000 pounds.

All XL Couplings are made in accordance to Pipe Coupling Standards. They are of correct lengths, have uniform wall thickness and full smooth threads.

To make them easy to fit and to protect the starting thread, all XL Couplings are beveled inside.

All the couplings bear the trademark as shown by the illustration.

Large stock of standard size couplings carried and prompt shipments can be made.

XL Merchant Pipe Nipples



Assorted Lengths

Steel, Iron and Brass

All Sizes

in

Bulk



Straight Lengths

Are only manufactured from NEW MILL LENGTH TESTED PIPE, tested under internal hydraulic pressure of approximately 700 pounds to the square inch. No Salvaged—crop ends—or other inferior pipe is considered good enough in the manufacture of "XL" MERCHANT NIPPLES which insures YOU and YOUR TRADE the best nipples on the market. Once tried always used.

Assorted and straight standard sizes packed in cartons—any size in bulk.

XL Seamless Pipe Caps Bored from Solid Bars—Sizes 1/8 to 1-inch inclusive

Prices and Discounts Mailed on Request

Where Service is a Habit

THE BEAD CHAIN MANUFACTURING COMPANY

MANUFACTURERS OF BEAD CHAIN FOR ELECTRIC, PLUMBING, HEATING, JEWELRY AND NOVELTY INDUSTRIES

BRIDGEPORT, CONNECTICUT

DISTRIBUTORS

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Dearborn Brass Co., Cedar Rapids, Iowa
Detroit Sanitary Mfg., Detroit, Mich.
Frost Company, Kenosha, Wisconsin
Keeney Mfg. Co., Newington, Conn.
M. S. Little Mfg. Co., Hartford, Conn.
Mueller Company, Decatur, Illinois
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USE
BEAD CHAIN
FOR PLUMBING

Trade Mark Reg. U. S. Pat. Off.

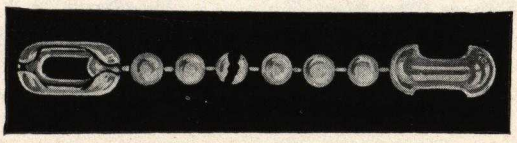
Strong **Non-Kinkable** **Non-Corrosive**

Bead Chain adds beauty to fixtures and gives complete satisfaction. It is standard with the leading manufacturers for use on the following installations:

Basin Stopper Chains
Bath Stopper Chains
Laundry Tray Stopper Chains
Shower Curtain Hold Back Chains
Shower Valve Chains
High Tank Chains
Trip Lever Bath Waste Chains
Ventilator Chains
Boiler Damper Regulator Chains
Furnace Damper Regulator Chains
Water Heater Lighter Chains
Warm Air Register Chains

Regularly Stocked in the Following Sizes and Lengths, with Couplings Attached

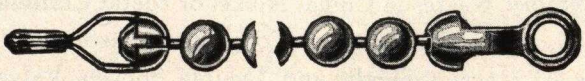
Also Available in Nickel Plated Brass and Chromium Plate



No. 10 Bead Chain

Made throughout of 18% Nickel Silver, highly polished. Tensile strength 45 to 50 pounds. Furnished with Type B combined jump ring couplings and splicing links or with Type A couplings. Diameter of bead, 3–16-inch.

In standard lengths with couplings of 11", 12", 13", 14", 15", 16", 17", and 18" overall. Also furnished in reels of 500 feet.



No. 13 Bead Chain

Made throughout of 18% Nickel Silver, highly polished. Tensile strength 120 to 130 pounds. Equipped with Type A jump ring couplings. Diameter of bead, ¼-inch.

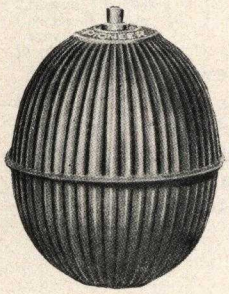
In standard lengths with couplings of, 11", 12", 13", 14", 15", 16", 17" and 18" overall. Also furnished in reels of 250 feet.

Write for samples and detailed information

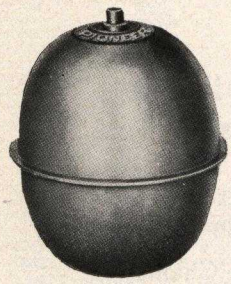
Established 1902

PIONEER STAMPING COMPANY DETROIT, MICH.

2131 East Woodbridge Street



C-45
Standard



P-245
Extra Quality
12-Ounce Copper

Pioneer Copper Floats

Pioneer Copper Floats are built for buoyancy, strength and service. They are made entirely of pure copper, with a solid brass reinforced spud. There are no rubber gaskets or heavy iron washers used in the construction of our float. Pioneer Floats are all quality.

On request we will send quotation and sample float without charge.

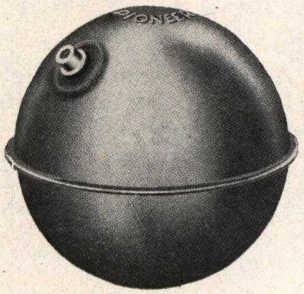
C-45 Standard 4x5-inch Corrugated. Standard weight copper.

P-245 Standard 4x5-inch Plain. 12-ounce copper, reinforced construction, non-collapsible.

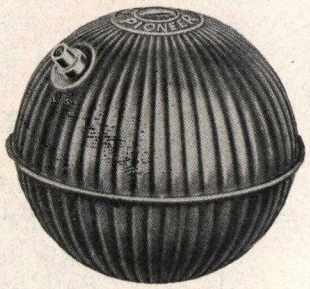
C-50 Standard 5-inch Corrugated. Standard weight copper.

P-250 Heavy 5-inch Plain. 12-ounce copper. Non-collapsible.

Special copper floats in 2, 3, 4, 6, 7, 8, 10 and 12-inch diameters can also be furnished. No order too small or too large to receive prompt attention. Quality, service and satisfaction guaranteed.



P-250
Extra Quality
12-Ounce Copper



C-50
Standard

STERLING FAUCET COMPANY NEWCOMERSTOWN, O.

ESTABLISHED 1907

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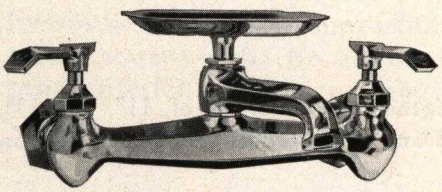
Philadelphia, Pa.
Vessey Johnson Co.,
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Quality Brass Goods for the Plumbing Industry

Manufacturers of a very complete line of Plumbers' Brass Goods of High Quality.

Three designs of Combination Swing Spout Sink Faucets—Four styles of Lavatory Faucets—Three and Five Valve Concealed Bath Fixtures—Combination Lavatory Fixtures—Pop-up Bath and Lavatory Wastes in China, Nickel or Metal Chrome Trim—Trip Lever Connected Waste and Overflow—Single and Double Shower Valve Bodies—Transfer Valves—Single and Double Laundry Tray Faucets.

With confidence in the merit of our product, each piece bears our name.



Art Design Combination Sink Faucet



Art Design Lavatory Faucet

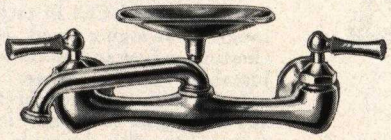
Bohn Aluminum & Brass Corporation

DETROIT **CAPITOL BRASS DIVISION** MICHIGAN

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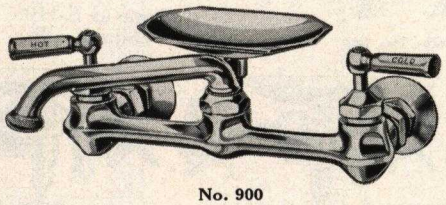
Capitol Combination Sink Faucets



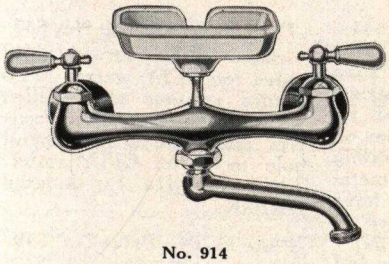
No. 910

No. 910—Especially fitted for installation on low back sinks. Furnished in chrome plate with metal handles and metal soap dish or china handles and china soap dish. Female couplings are eccentric, permitting ¼-inch adjustment on 8-inch centers. Male couplings are of the adjustable flanged type. List Price, each $14.00.

No. 900—Furnished in chrome plate only, with metal handles and metal soap dish. With eccentric female or adjustable male flanges. List Price, each $15.00.

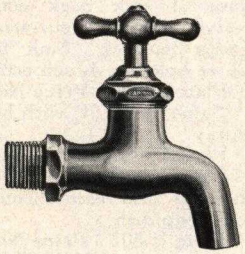


No. 900



No. 914

No. 914—Furnished in nickel plate only, with china handles and soap dish. With eccentric female or adjustable male flanges. List Price, each $10.00.



Capitol Sink Faucets

Compression—For Iron Pipe

No. 500—Plain, male, hexagon shoulder.
No. 501—Hose, male, hexagon shoulder.

Solid Flange Female	Quick Compression Faucets	Adjustable Flange
No. 600	Plain, Tee Handle	No. 800
No. 601	Hose, Tee Handle	No. 801
No. 602	Plain, 4 Ball China Index Handle	No. 802
No. 603	Hose, 4 Ball China Index Handle	No. 803
No. 604	Plain, China Lever Handle	No. 804
No. 605	Hose, China Lever Handle	No. 805
No. 606	Plain, 4 Ball All China Handle	No. 806
No. 607	Hose, 4 Ball All China Handle	No. 807

List Prices, Each

Size, In.	1/2	3/4	1/2	3/4	1/2	3/4	1/2	3/4	1/2	3/4
Number	500		501		600		601		602	
Rough	$1.10	$1.30	$1.30	$1.50	$....	$....	$....	$....	$....	$....
Finished	1.40	1.60	1.60	1.80						
N. P.	1.50	1.80	1.70	2.00	1.90	2.30	2.10	2.50	2.40	2.90
Number	603		604		605		606		607	
N. P.	2.60	3.10	2.25	2.75	2.40	2.95	2.55	3.05	2.75	3.25
Number	800		801		802		803			
N. P.	2.20	2.60	2.40	2.80	2.70	3.20	2.90	3.40		
Number	804		805		806		807			
N. P.	2.55	3.05	2.75	3.25	2.85	3.35	3.05	3.55		

Capitol Lavatory Faucets



No. 404

Junior Pattern

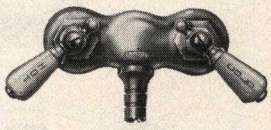
No. 403—4 Ball China Index Handle. List Price, each.....$2.15
No. 404—China Lever Handle. List Price, each..... 2.00
No. 405—4 Ball Solid China Handle. List Price, each..... 2.30
No. 409—Chrome Plated All Metal Cross Handle. List Price, each.....$....
Center to center spout measurements, 3¼ inches.

Heavy Pattern

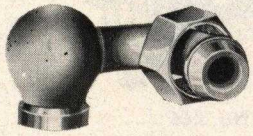
No. 400—China Lever Handle, List Price, each.....$2.40
No. 401—4 Ball China Index Handle, List Price, each..... 2.55
No. 402—4 Ball Solid China Handle, List Price, each..... 2.70
No. 407—Chrome Plated All Metal Cross Handle, List Price, each..$....
Center to center spout measurements, 3½ inches.
Shanks are 2¼ inches long and ¼ inch I. P. rough male couplings are regularly furnished.

Capitol Bath Faucets

Medium in weight, well finished and carefully made.
No. 934—China Lever Handles, List Price, each.....$4.25
No. 935—4 Ball China Index Handles, List Price, each.....$4.25
No. 936—4 Ball Solid China Handles, List Price, each.....$4.50
No. 937—Chrome Plated All Metal Cross Handles, List Price, each, $....

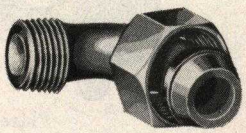


No. 934



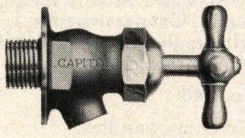
No. 950

Capitol Bath Couplings



No. 951

No. 950—Ball Offset Couplings, List Price, per pair.....$1.75
No. 951—Rough Male Couplings, List Price, per pair..... .90
No. 952—Finished Male Couplings, List Price, per pair..... 1.30



No. 426

Laundry Tray Faucets



No. 440

Stub Pattern

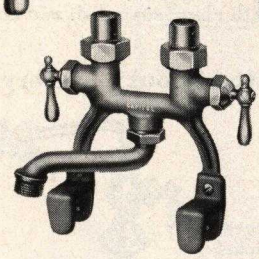
No. 426
Male—Plain End

No. 427
Male—Hose End
½ and ¾-inch
I. P. Sizes

No. 428
Female—Plain End

No. 429
Female—Hose End
½-inch Size Only

Rough Nickel Plated



No. 420
Combination Laundry Faucet, for 2-part tub

Heavy Pattern

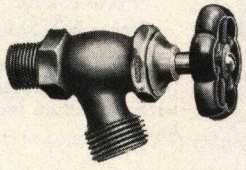
No. 440
Male—Plain End

No. 441
Male—Hose End
½ and ¾-inch
I. P. Sizes

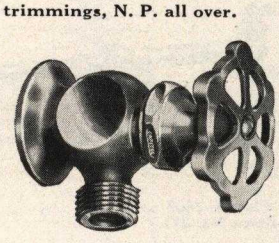
No. 450
Female—Plain End

No. 451
Female—Hose End
½-inch Size Only
Polished or N. P.

No. 421—Combination Laundry Faucet with Long Spout, for 3-part tub.
Rough body and machine finished trimmings, N. P. all over.



No. 425
Sediment Faucet
No. 424 — Same — Plain End



No. 470
Lawn Faucet
No. 471—With Key Handle

See Page 393 for Our Line of Heating Brass Goods

THE CHICAGO FAUCET COMPANY CHICAGO, ILL.

General Offices and Factory—2700-22 N. Crawford Avenue

Classic Sink Faucets

Plate E-501—**Price No. 540**

"Straight-8 Streamline" Classic Sink Faucet, with overhead swinging spout, metal handles, Quaturn valves and metal soap dish. Adjustable 7¼ to 8¾ inches. (Patent No. 1181370). Low height—only 3½ inches, makes this fixture especially adaptable to the new low-back sinks and is equally desirable on old-style sinks. Connections for ½-inch iron pipe, female. Also furnished with male arm, adjustable flange, if so ordered.

Plate E-502—**Price No. 541**
Same as E-501, with hose and spray.

Plate E-503—**Price No. 542**
Same as E-501, with china soap dish and china handles.

Plate E-504—**Price No. 543**
Same as E-503, with hose and spray.

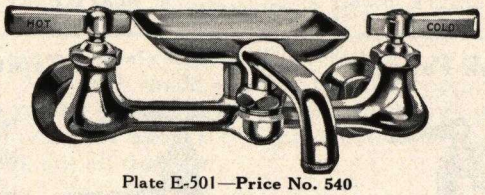


Plate E-501—**Price No. 540**

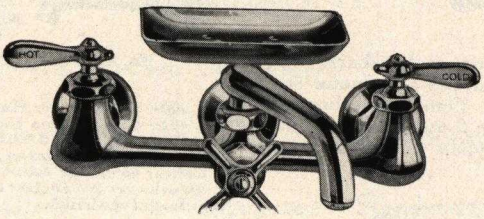


Plate E-1106—**Price No. 561**

Plate E-1106—**Price No. 561**

"Straight-8 Streamline" Three Water Classic Sink Faucet for HOT and COLD soft water and COLD city water, with overhead swinging spout, metal handles, Quaturn valves and metal soap dish. Adjustable 7⅞ to 8⅛ inches. Low height—only 3¼ inches, makes this fixture especially adaptable to the new low-back sinks and is equally desirable on old-style sinks. Connections for ½-inch iron pipe, female. Also furnished with male arm, adjustable flange, if so ordered. Requires 3 holes in sink back, 4-inch center to center.

Plate E-1107—**Price No. 564**

Same as E-1106, with china soap dish and china handles.

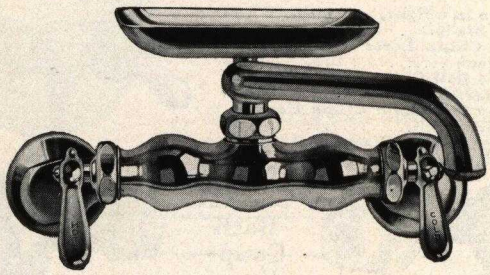


Plate E-601—**Price No. 444**

Classic Sink Faucet with overhead swinging spout, metal side handles. Quaturn valves and metal soap dish. Adjustable 4 to 8⅜ inches. (Patent No. 1181370). Also furnished for 10 and 12 inch centers. Ideal for the new low-back sinks and equally adaptable to high-back sinks. Only 4 inches high. Connections for ½-inch iron pipe, female. Also furnished with male arm, adjustable flange, if so ordered, on 8-inch and 10-inch centers only.

Plate E-603—**Price No. 446**

Same as E-601 with china soap dish and china handles.

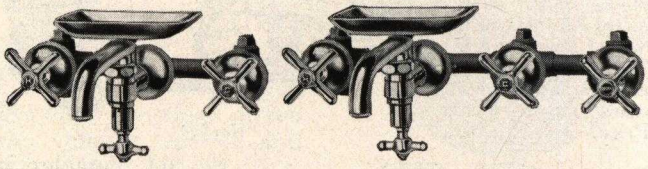


Plate E-701—**Price No. 544**
All-metal Concealed Valve Classic Sink Faucet with soap dish, swinging overhead spout, Quaturn valves concealed by sink back, metal escutcheons on face of sink back concealing valve caps, and four-arm metal index handles. Sink to have three holes on 4-inch centers.

Plate E-702—**Price No. 547**
Same as E-701, with hose and spray.

Plate E-801—**Price No. 308**
Same as E-701, with china handles and escutcheon, without soap dish.

Plate E-802—**Price No. 309**
Same as E-801, with china soap dish.

Plate E-803—**Price No. 310**
Same as E-802, with hose and spray.

Plate E-703—**Price No. 548**
Same as E-701, with third valve for CITY water. This fixture requires sink drilled with four holes on 4-inch centers and extreme right hand hole to be for CITY water. This handle is indexed DRINK.

Plate E-704—**Price No. 549**
Same as E-703, with hose and spray.

Plate E-804—**Price No. 384**
Same as E-703, with china handles, escutcheons and soap dish.

Plate E-805—**Price No. 385**
Same as E-804, with hose and spray.

Connected Spout Lavatory Faucets

Plate E-2801
Price No. 183

Quaturn Connected Basin Fixture, nickel-plated, elevated pattern, with china index handles. Adjustable centers.

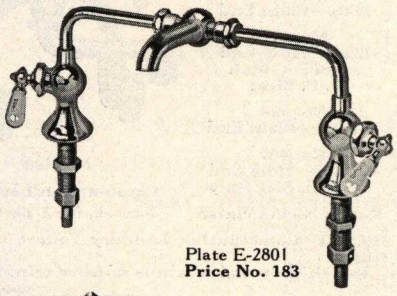


Plate E-2801
Price No. 183

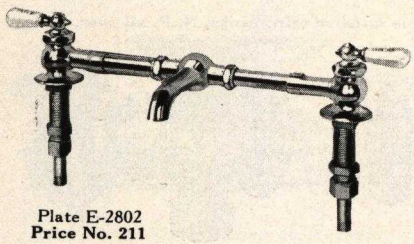


Plate E-2802
Price No. 211

Plate E-2802
Price No. 211

Same as E-2801, but in low pattern with top china index handles.

Pop-up Bath Waste

(Patent No. 1818653)

Plate E-5601—**Price No. 501**

All Metal Pop-up Bath Waste, round pattern, 1½ inches, with ball joint to adjust to angle of any tub. Handle operates up and down through overflow bell, with snap action like electric toggle switch. Can also be furnished with double ball joint to meet irregular conditions. Specify whether wanted with 1½-inch female threads on outlet, or 1½-inch male thread and 1½-inch O. D. waste tube.

Plate E-5602—**Price No. 502**

Same as E-5601, but in Art Chrome, octagon pattern, chromium plated.

Also furnished in 2-inch size at extra cost.

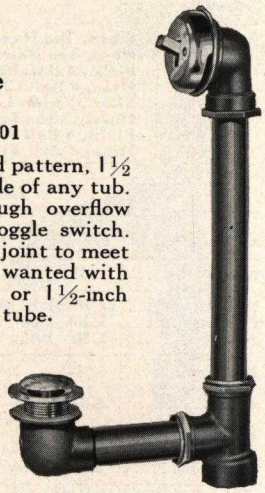


Plate E-5601
Price No. 501

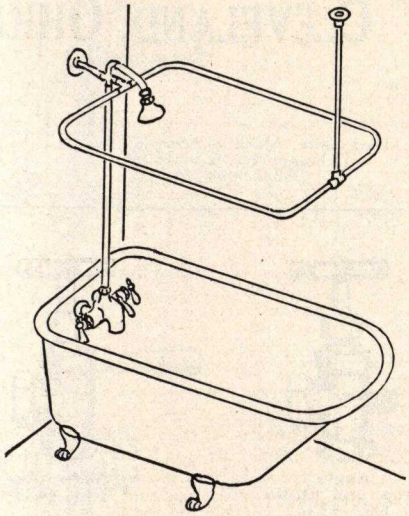
Any faucet on this page can be furnished or changed to self-closing
Send for Catalog showing complete line of Faucets, Bubblers, Showers, etc.

ADD-A-SHOWER

There is an ADD-A-SHOWER to fit every tub

Every tub without a Shower needs an ADD-A-SHOWER

No need to disturb plumbing or mar walls



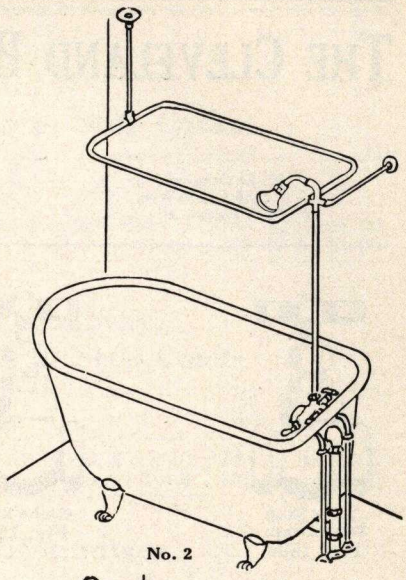
No. 1

No. 1. Tub on legs, set in corner, with double bath faucet at corner end. Remove old faucet and equip with No. 530 Add-a-Shower, complete with 24x42-inch curtain rod and two curtains.

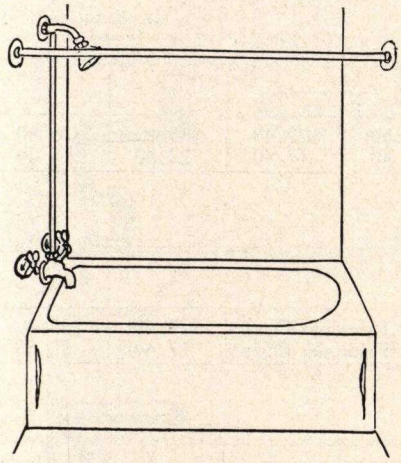
List Price.....**N. P. $48.00 C. P. $55.00**

No. 2. Tub on legs, with double bath faucet at exposed end. Remove old faucet and equip with No. 530 special Add-a-Shower, complete with 24x42-inch curtain rod, street ell and 18-inch wall support and two curtains.

List Price.....**N. P. $50.00 C. P. $57.00**

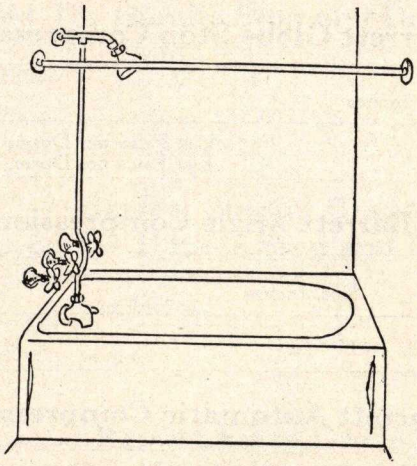


No. 2



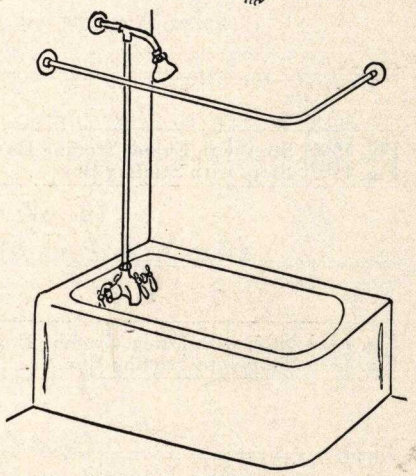
No. 3. Built-in recess (or corner) tub with spout over the rim. Remove old spout and equip with No. 488 Add-a-Shower. (Curtain rod and curtain not included.)

List Price.....**N. P. $16.50 C. P. $18.30**



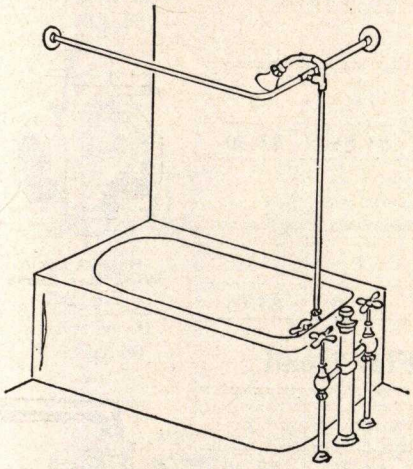
No. 4. Built-in recess (or corner) tub with three handles on wall and spout (or bell) inside tub. Remove old spout (or bell) and equip with No. 528 Add-a-Shower with offset riser to clear center handle. (Curtain rod and curtain not included.) Send old spout with order for thread size.

List Price.....**N. P. $21.50 C. P. $23.50**



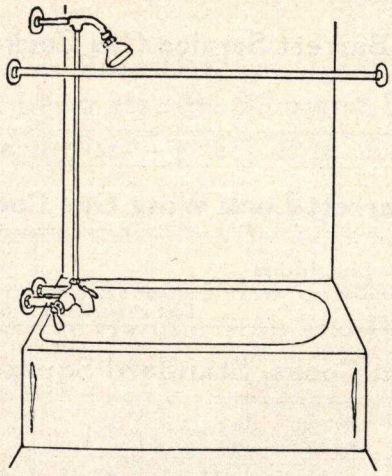
No. 5. Built-in corner (or recess) tub with double bath faucet inside tub. Remove old faucet and equip with No. 532 Add-a-Shower. (Curtain and rod not included.)

List Price.....**N. P. $27.60 C. P. $30.55**



No. 6. Built-in corner tub with exposed fixture at exposed end and spout (or bell) inside tub. Remove old spout (or bell) and equip with No. 528 special Add-a-Shower with corner curtain rod and curtain. Send old spout with order for thread size and advise length and width of tub.

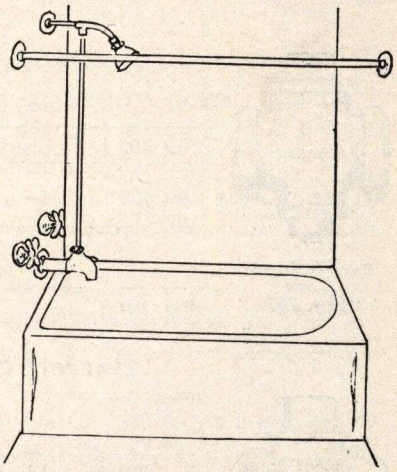
List Price.....**N. P. $31.00 C. P. $34.45**



No. 7. Built-in recess (or corner) tub with double bath faucet on wall over the rim. Remove old faucet and equip with No. 533 or No. 534 Add-a-Shower. (Curtain and rod not included.)

List Price (No. 533)..**N. P. $28.60 C. P. $31.55**

List Price (No. 534)..**N. P. 32.60 C. P. 37.05**



No. 8. Built-in recess (or corner) tub with spout over the rim and with valve handles too close together for riser to pass between. Remove old spout and equip with No. 527 Add-a-Shower. (Curtain rod and curtain not included.)

List Price.....**N. P. $21.50 C. P. $23.50**

Above prices are with No. 620 Brownie Shower Head—if with 4-inch Head, add $2.00 N. P.—$2.25 C. P.

Prices are subject to trade discount. Also subject to change without notice.

THE CLEVELAND BRASS MFG. CO. CLEVELAND, OHIO

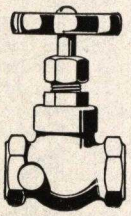
4606-4700 Hamilton Avenue

REPRESENTATIVES

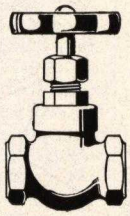
H. D. Stannard, Jr.
7435 Clyde Ave.,
Chicago, Ill.

Gleichman & Waldman,
51 Madison Ave.,
New York, N. Y.

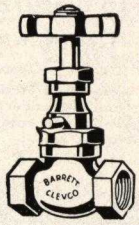
Derbyshire, Mack & Morgan, Inc.,
Delaware Ave. & South St.,
Philadelphia, Pa.



Globe Stop With Drain
Fig. 1506



Globe Stop
Fig. 1507



Automatic
Fig. 1400



Angle Stop and Drain
Fig. 1434



Angle Stop
Fig. 1435

Barrett Globe Stop Compression

	Size, Inches	⅜	½	¾	1
Fig. 1506	Stop with Drain, Stuffing Box.....List Price per Dozen	$25.80	$29.40	$35.40	$76.80
Fig. 1507	Stop, with Stuffing Box.....List Price per Dozen	14.40	17.40	22.80	54.00

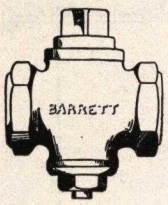
Barrett Angle Compression

	Size, Inches	½	¾
Fig. 1434	Stop with Drain, Stuffing Box.....List Price per Dozen	$29.40	$35.40
Fig. 1435	Stop with Stuffing Box.....List Price per Dozen	17.40	22.80

Barrett Automatic Compression

	Size, Inches	½	¾	1
Fig. 1400	.....List Price per Dozen	$32.40	$38.40	$84.00

Prices on Compression with Copper to Copper, or Copper to Iron Couplings can be furnished on request.
Sockets or Tee Handle furnished on request.



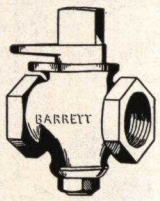
Barrett Steam Cock
Fig. 203

Barrett Service Gas Cocks

	Size, Inches	½	¾	1	1¼	1½	2
Fig. 200	....List Price Each	$1.25	$1.70	$2.35	$3.70	$4.85	$7.30

Barrett Lock Wing Gas Cocks

	Size, Inches	¾	1	1¼
Fig. 201	.....List Price Each	$1.60	$2.50	$3.05

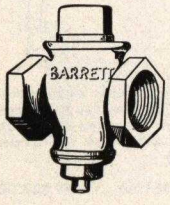


Barrett Lock Wing Gas Cocks
Fig. 201

Barrett Steam Cocks, Standard Square or Flat Head

	Size, Inches	½	¾	1	1¼	1½	2
Fig. 203	.....List Price Each	$1.25	$1.70	$2.35	$3.70	$4.85	$7.30

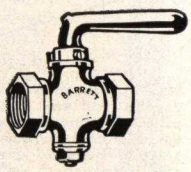
Can furnish Wrenches for the above items. Prices on Application.



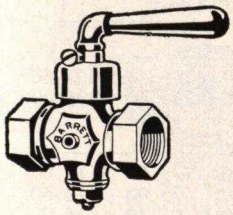
Barrett Service Gas Cocks
Fig. 200

Barrett Lever Handle Gas Cocks

	Size, Inches	¼	⅜	½	¾	1
Fig. 202	.....List Price Each	$1.65	$1.70	$1.75	$2.45	$4.40



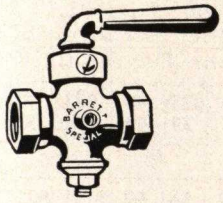
Barrett Lever Handle Gas Cocks
Fig. 202



High Grade (or No. 1
Fig. 20

Barrett High Grade (or No. 1)
Lever or Tee Handle Stop and Drain or Stop Cocks

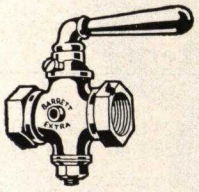
	Size, Inches	½	⅝	¾	1	1¼	1½	2
Fig. 20	Stop and Drain, List per Doz.	$21.60	$30.00	$36.60	$54.00	$91.20	$152.40	$264.00
Fig. 21	Stop, List per Doz.	21.00	29.40	36.00	52.80	89.40	149.40	258.00



Special Grade
(or No. 2)
Fig. 56

Barrett High Grade (or No. 1) (Roundway)
Lever or Tee Handle Stop and Drain or Stop Cocks

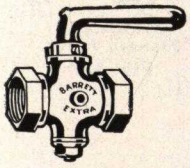
	Size, Inches	½	⅝	¾	1	1¼	1½	2
Fig. 38	Stop and Drain, List per Doz.	$27.00	$36.60	$46.80	$75.00	$122.40	$200.40	$348.00
Fig. 39	Stop, List per Doz.	26.40	36.00	46.20	73.80	120.60	197.40	342.00



Extra Grade
(or No. 3)
Fig. 88

Barrett High Grade (or No. 1) (Roundway)
Solid Tee Handle Stop and Drain or Stop Cocks

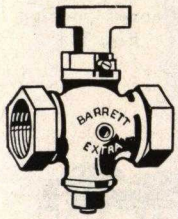
	Size, Inches	½	⅝	¾	1	1¼	1½	2
Fig. 44	Stop and Drain, List per Doz.	$27.00	$36.60	$46.80	$75.00	$122.40	$200.40	$348.00
Fig. 45	Stop, List per Doz.	26.40	36.00	46.20	73.80	120.60	197.40	342.00



Extra Grade
(or No. 3)
Fig. 92

Barrett Special Grade (or No. 2)
Lever or Tee Handle Stop and Drain or Stop Cocks

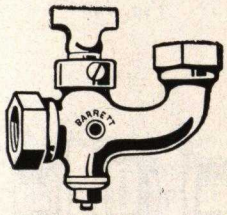
	Size, Inches	½	⅝	¾	1
Fig. 56	Stop and Drain, List per Doz.	$21.60	$30.00	$36.60	$54.00
Fig. 57	Stop, List per Doz.	21.00	29.40	36.00	52.80



Extra Grade
(or No. 3)
Fig. 90

Barrett Extra Grade (or No. 3)
Lever or Tee Handle Stop and Drain or Stop Cocks

	Size, Inches	¼	⅜	½	⅝	¾	1
Fig. 92	Stop and Drain, List per Doz.	$20.40	$21.00	$21.60	$30.00	$36.60	$54.00
Fig. 93	Stop, List per Doz.	19.80	20.40	21.00	29.40	36.00	52.80



Barrett Hydrant
Cock-Cap Pattern
Fig. 112

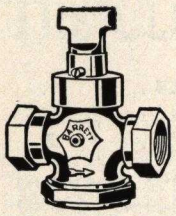
Barrett Extra Grade (or No. 3)
Solid Tee Handle Stop and Drain or Stop Cocks

	Size, Inches	¼	⅜	½	⅝	¾	1
Fig. 90	Stop and Drain, List per Doz.	$20.40	$21.00	$21.60	$30.00	$36.60	$54.00
Fig. 91	Stop, List per Doz.	19.80	20.40	21.00	29.40	36.00	52.80

Barrett Hydrant Cocks (Cap Pattern)
Flat Way with Galvanized Tee Handle

	Size, Inches	½	⅝	¾	1	1¼	1½	2
Fig. 112	List per Doz.	$25.80	$36.60	$45.00	$64.80	$103.80	$170.40	$288.00

See Following Page

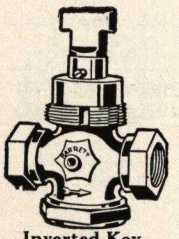


Inverted Key Regular Pattern
Fig. 96

Barrett Inverted Key Curb Cocks—Regular Pattern

Size, Inches			½	⅝	¾	1	1¼	1½	2
Fig. 96	Stop and Drain	List per dozen	$36.00	$46.20	$59.40	$90.00	$146.40	$236.40	$402.00
Fig. 97	Stop	List per dozen	35.40	45.60	58.80	88.80	144.60	233.40	396.00

Size, Inches			½	⅝	¾	1
Fig. 100	Stop and Drain—Lead Flange to Iron Pipe	List per dozen	$45.60	$59.40	$75.60	$114.00
Fig. 101	Stop—Lead Flange to Iron Pipe	List per dozen	45.00	58.80	75.00	112.80
Fig. 104	Stop and Drain—Lead Flange to Lead	List per dozen	55.20	72.60	91.80	138.00
Fig. 105	Stop—Lead Flange to Lead	List per dozen	54.60	72.00	91.20	136.80

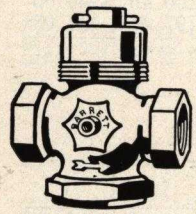


Inverted Key Minneapolis Pattern
Fig. 98

Barrett Inverted Key Curb Cocks—Minneapolis Pattern

Size, Inches			½	⅝	¾	1	1¼	1½	2
Fig. 98	Stop and Drain	List per dozen	$40.80	$51.60	$65.40	$97.80	$158.40	$254.40	$432.00
Fig. 99	Stop	List per dozen	40.20	51.00	64.80	96.60	156.69	251.40	426.00

Size, Inches			½	⅝	¾	1
Fig. 103	Stop and Drain—Lead Flange to Iron Pipe	List per dozen	$50.40	$64.80	$81.60	$121.80
Fig. 103	Stop—Lead Flange to Iron Pipe	List per dozen	49.80	64.20	81.00	120.60
Fig. 106	Stop and Drain—Lead Flange to Lead	List per dozen	60.00	78.00	97.80	145.80
Fig. 107	Stop—Lead Flange to Lead	List per dozen	59.40	77.40	97.20	144.60



Inverted Key Kansas City Pattern
Fig. 109

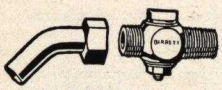
Barrett Inverted Key Curb Cocks—Kansas City Pattern

Size, Inches			½	⅝	¾	1	1¼	1½	2
Fig. 109	Minn Type	List per dozen	$40.80	$51.60	$65.40	$97.80	$158.40	$254.40	$432.00
Fig. 108	Regular Type	List per dozen	35.40	45.60	58.80	88.80	144.60	233.40	396.00
Fig. 111	15-Inch Keys	List per dozen	.....	9.00	9.00	14.40	14.40	.....	.....

Also can furnish copper fittings for Curb and Corporation Cocks. Prices and catalog on application.



Gooseneck Flanged Joints
Fig. 137



For Wiped Joints
Fig. 123

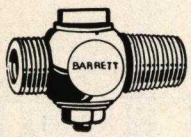
Barrett Corporation Cocks

For Mueller Machine with one-eighth Bend Tail Pieces.
Can also furnish Corporation Cocks with Iron Pipe.

Size, Inches			½	⅝	¾	1
Fig. 123	With Tail Piece	List per Doz.	$19.20	$27.00	$34.20	$54.00
Fig. 120	Without Tail Piece	List per Doz.	17.40	23.40	30.00	48.00



Flanged Coupling
Fig. 124



(Without Tail Pieces)
Fig. 120

Barrett Lead Goosenecks, Complete

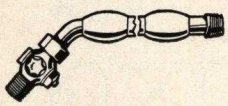
Size, Inches			½	⅝	¾	1
Fig. 136	Wiped Joints	List per Doz.	$63.00	$75.00	$87.00	$129.00
Fig. 137	Flanged Joints	List per Doz.	63.00	75.00	87.00	129.00

Barrett Corporation Cocks—Lead Flange Couplings

Size, Inches		½	⅝	¾	1
Fig. 124	List per Doz.	$27.00	$36.00	$46.20	$72.00



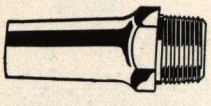
Lead to Iron Couplings
Fig. 130



Complete Gooseneck Wiped Joints
Fig. 136

Barrett Lead Flange Union Couplings

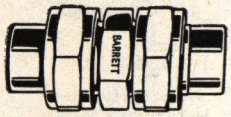
Size, Inches			½	⅝	¾	1
Fig. 130	Lead to Iron	List per Doz.	$10.20	$15.60	$18.00	$24.00
Fig. 131	Lead to Lead	List per Doz.	21.00	30.00	35.40	46.80



Soldering Nipples
Fig. 135 Male
Fig. 134 Female

Barrett Soldering Nipples

Size, Inches			½	¾	1
Fig. 135	Male	List per Doz.	$4.20	$6.00	$8.40
Fig. 134	Female	List per Doz.	4.20	6.00	8.40



Lead to Lead Couplings
Fig. 131

Radiator Fill Faucets

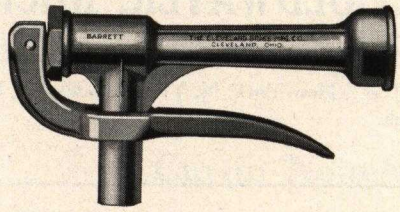


Fig. 2295

Full Flow. Concentrated Stream.
Just grip the handle. No Kick-Back.
Will fit any ¾-inch male hose connection.
Special design eliminates all hose breakage.

Auto Wash Faucets

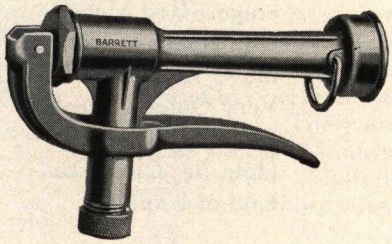


Fig. 2299

Can be instantly locked in open position. The stream may be changed from a spray to a concentrated flow by simply removing cap and reversing the perforated disc.
Will fit any ¾-inch male hose connection.

¾-Inch Compression Oil Barrel Faucets

Special Screw Type
Red Brass



Fig. 2373

This faucet spout is made especially for filling small bottles, oil cans, oil lamps, etc. Handles gasoline, kerosene, turpentine, alcohol and oils perfectly, without a leak.

Ground Key Oil Barrel Faucets

Red Brass



Fig. 2310

Spring device maintains a constant, even pressure on plug and automatically takes up wear. Full size opening.

Size.....	½	⅝	¾	1	1¼	1½

¾-Inch Self Closing Spring Type Oil Barrel Faucets

Made of Red Brass
Flexible Fibre Seat Washer

Guaranteed to hold gasoline, kerosene, alcohol, thinners or penetrating oil.



Fig. 2381

Fulflo (Gate) Oil Barrel Faucets

1½ and 2 Inches

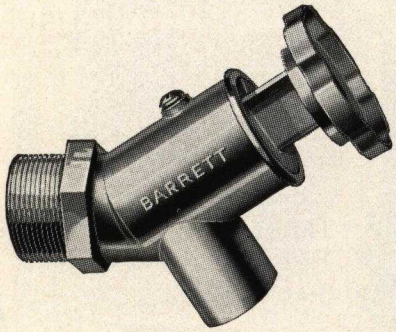


Fig. 2308

Made especially for lubricating oils, kerosene, alcohol, molasses, and paint thinners.

Prices and Catalog on Application

COLDWATER BRASS COMPANY — COLDWATER, MICHIGAN

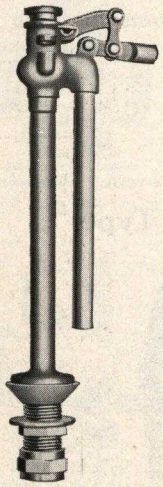
Representatives in

Boston, Mass.—Chicago, Ill.—Cleveland, O.—Detroit, Mich.—Los Angeles, Cal.—New York, N. Y.—Philadelphia, Pa.—San Francisco, Cal.—Seattle, Wash.

Address All Inquiries to Main Office

Closet Tank Trimmings

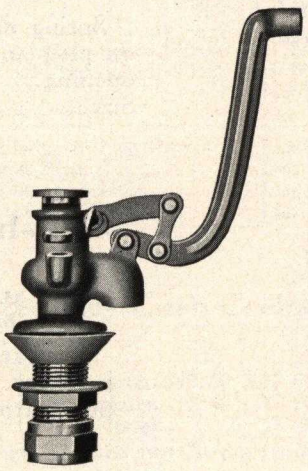
Ball Cocks—Flush Valves—Levers



No. 26

No. 26 Elevated Ballcock

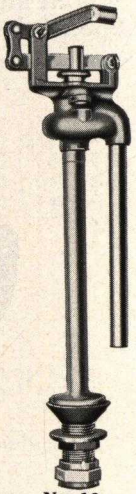
By - Pass Ballcock Compound Leverage. Red Metal. Quiet in Operation.



No. 10 Submerged

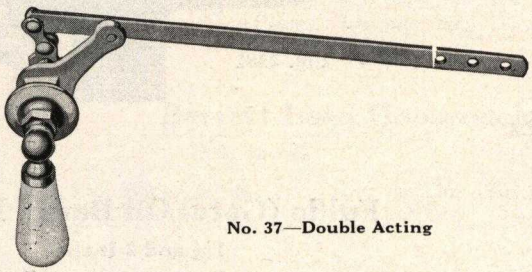
No. 16 Elevated Ballcock

Compound Leverage. Red Metal. One Screw to Remove for Repairs. Very Quiet. Ideal Installation where Hole is Close to End of Tank.



No. 16

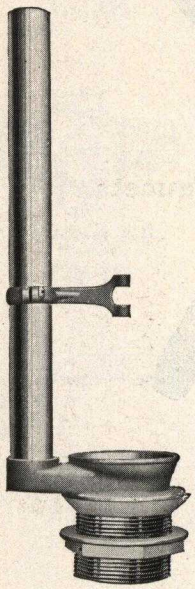
Levers Easy to Operate—No Friction—Double Acting—Single Acting and Rotary



No. 37—Double Acting



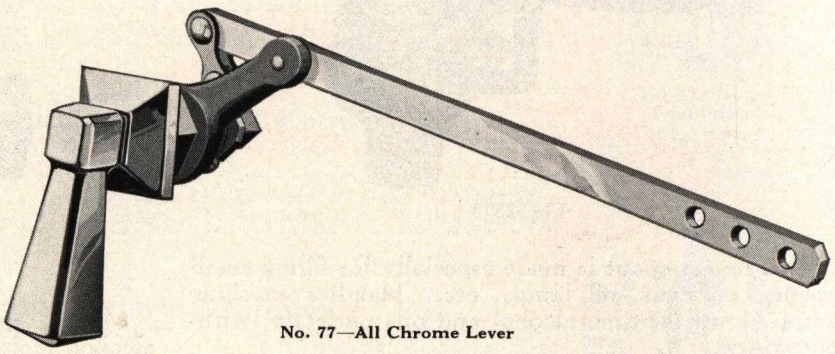
No. 47—Double Acting—One Piece All China Lever



No. 50

Flush Valve Red Metal

Large opening in Throat. Seamless Tube. Perfect Seat.



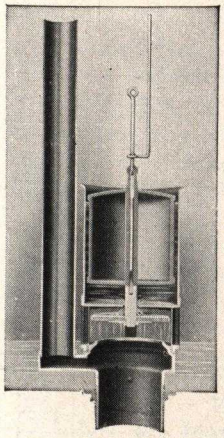
No. 77—All Chrome Lever

All Fittings Tested and Guaranteed

A. F. CURTIN VALVE CO. MEDFORD, MASS.

General Office—76 Ship Avenue

Curtin Noiseless High Grade Tank Fittings



Sectional View

This illustration shows the float slowly falling as the water leaves the float chamber; the valve but partly closed, yet tank already emptied.

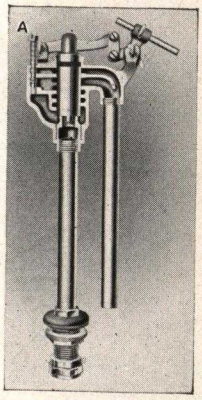
"Curtin Victory" Valve

(Re-filling)

This valve has a full unrestricted waterway and starts the syphon action immediately. It will operate the largest closet with a minimum amount of water. Takes out all of the water and tank refills with clean water. Refills any closet. No refill tube is required. Has a flat special seat washer. Easily operated, a slight touch of the lever lifts the valve. Quiet in operation, it falls silently on its seat. There are no close fitting parts. Manufactured from cast bronze. Cylinder and overflow tube of seamless drawn copper.

"Curtin Rotary" Ballcock

(Bottom Supply)

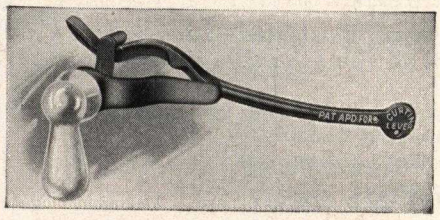


Sectional View

Gives maximum volume of water without noise on any pressure. Bypass regulator "A" assures quick refill of tank. Rotary control of water eliminates noise. Aspirating chamber prevents water from spurting around in the tank. Manufactured from cast bronze. Hush and refill tubes of seamless drawn copper. Extra long shanks furnished for replacement work. The powerful compound leverage together with the silent operation of this ballcock recommend it for use on all important installations. Furnished also with back supply and top supply connection. (See illustration in opposite column.)

Curtin Lever

(China Handle and Escutcheon)

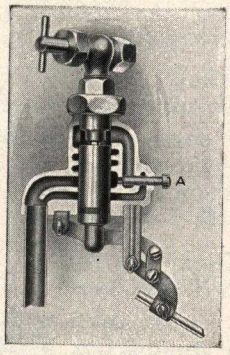


The Curtin Lever is made of bronze castings. Strong and always in alignment. There are no stamped parts. Once attached to the tank, it will neither work loose or shift position. This double action lever exerts a powerful lift in either direction with a slight touch of the handle.

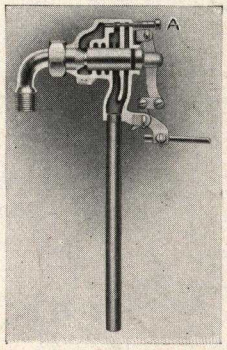
The new style Curtin escutcheon is held in position by an internally concealed phosphor bronze expansion ring and is self-adjusting to thickness of tank wall. This feature eliminates the danger of cracking the china escutcheon.

This lever can be furnished also with artistically designed art chrome handle and escutcheons.

"Curtin Rotary" Ballcock

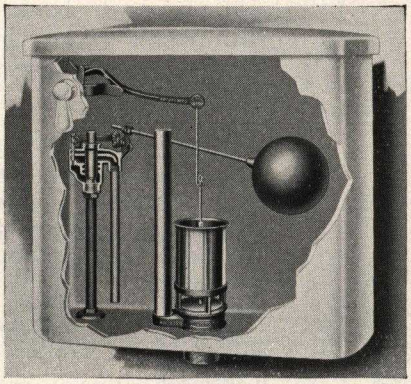


Sectional View "Curtin Rotary" Back Supply Ballcock or Float Valve



Sectional View "Curtin Rotary" Top Supply Ballcock for High Tank

Curtin Tank Fittings Installed



The Curtin Noiseless Tank Fittings will fit and operate in any low tank for any style of water closet. Often used in replacement work. Handled by all potteries and leading supply houses.

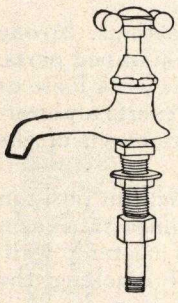
DICK BROTHERS, INC. READING, PA.

Third and Buttonwood Streets

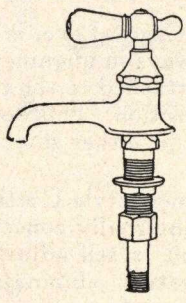
Representatives:

Atlanta, Ga., A. H. Deveney & Co., 1505 Fourth National Bank Bldg.
Chicago, Ill., Howard E. Crum, Jr., 2615 Blaine Place
New York, N. Y., Robert K. Story, 150 Nassau St.
Philadelphia, Pa., Russell D. Knight Co., 2814 N. Broad St.
San Francisco, Cal., Eckert-Lloyd Corp., 734 Mission St.

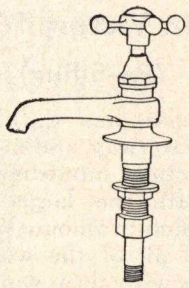
Plumbers' Brass Goods



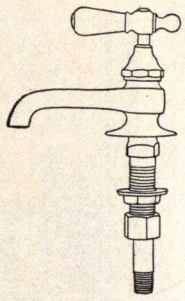
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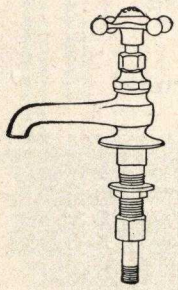
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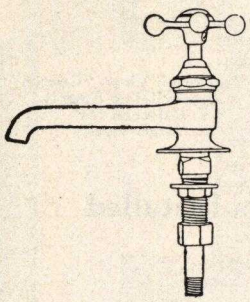
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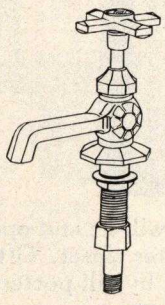
No. 8



No. 10



No. 15



No. 76

"Dick" Basin Faucets

"Dick" No. 2 Compression

Low down pattern basin faucet, with dome bonnet, 3¼-inch spout and standard shank.

"Dick" No. 4 Compression

Semi-low down pattern basin faucet, with dome bonnet, 3½-inch spout and standard shank. Also furnished with 3-inch shank.

"Dick" No. 10 Compression

Semi-low down pattern basin faucet, with stuffing box, 3½-inch spout and standard shank. Also furnished with 3-inch shank.

"Dick" No. 15 Compression

Heavy pattern basin faucet, with dome bonnet, 5-inch spout and standard shank. Furnished with either 4-ball china indexed handles or all china handles, indexed.

"Dick" No. 76 Compression

Colonial pattern wrought brass basin faucet, 3¼-inch spout, standard shank. All metal handles, "H" and "C." "Crodon" chromium plated.

"Dick" No. 6 Quick Compression

Low down pattern basin faucet, with 3¼-inch spout, standard shank and china lever handle, indexed.

"Dick" No. 8 Quick Compression

Semi-low down pattern basin faucet, with 3½-inch spout, standard shank and china lever handle, indexed.

"Dick" No. 14 Quick Compression

Semi-low down pattern basin faucet, with stuffing box, 3½-inch spout, standard shank and china lever handle, indexed.

"Dick" No. 19 Compression

Heavy pattern basin faucet, with dome bonnet, 3¾-inch spout and standard shank.

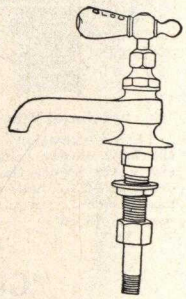
"Dick" No. 20 Compression

Heavy pattern basin faucet, with stuffing box, 3¾-inch spout and standard shank.

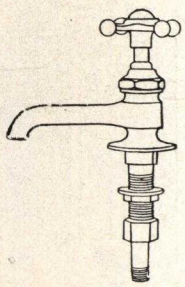
The above Compression Basin Faucets which are illustrated with 4-ball china indexed handles are also furnished with all china handles indexed, if desired.

All Basin Faucets are furnished with ¼-inch Tail Pieces or reamed for Slip Joint Connections.

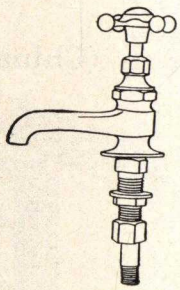
The regular finish of these Basin Faucets is Nickel Plated. Are also furnished in genuine **"Crodon" Chromium Plate.**



No. 14



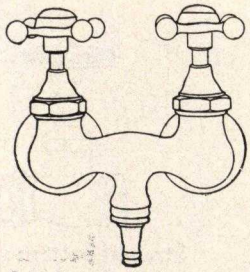
No. 19



No. 20

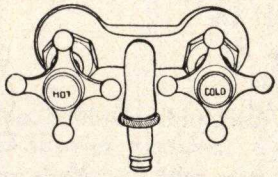
Plumbers' Brass Goods

"Dick" Bath Faucets



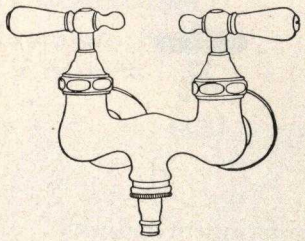
"Dick" No. 3 Compression Bath Faucet

Heavy pattern, with dome bonnet or stuffing box. Furnished with 4-ball china indexed handles or all china handles, indexed.



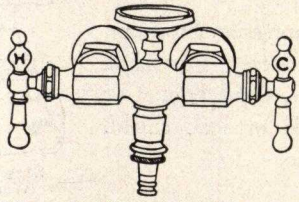
"Dick" No. 0 Compression Bath Faucet

Heavy pattern, front handle type, with dome bonnet or stuffing box. Furnished with 4-ball china handles or all china handles, indexed.



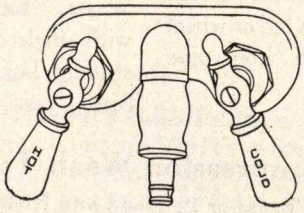
"Dick" No. 3½ Quick Compression Bath Faucet

Heavy pattern, with dome bonnet or stuffing box, and with china lever handles, indexed.



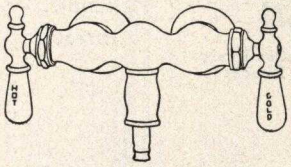
No. 4½ Hexagon Body "Dick" Fuller Bath Faucets

No. 4½ heavy pattern, hexagon or round body, with or without jewel cup. Furnished with indexed brass handles or with china handles, indexed.



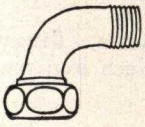
"Dick" No. 5 Quick Compression Bath Faucet

Lever front handle pattern with china handles, indexed.



"Dick" No. 7 Quick Compression Bath Faucet

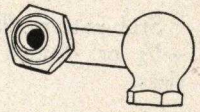
Heavy pattern, round body, with china handles, indexed.



N. P. Iron Pipe Coupling

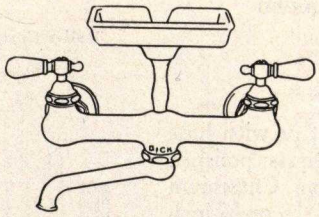
All "Dick" Bath Faucets are 3⅜ inches center to center, and are furnished with Ball Offset Couplings which spread 7½ inches center to center of Couplings, or with any other style of Couplings desired.

Nickel or Genuine "Crodon" Chromium Plated



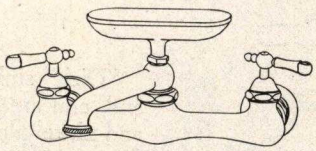
N. P. Ball Offset Coupling

Miscellaneous "Dick" Fixtures



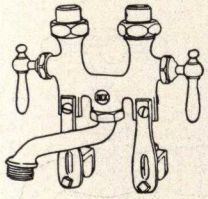
"Dick" Quick Opening Swinging Bottom Nozzle Combination Sink Faucet

Either with or without China Soap Dish.



"Dick" Quick Opening Swinging Top Nozzle Combination Sink Faucet

Metal Soap Dish and Metal Handles. Also furnished with China Trim.

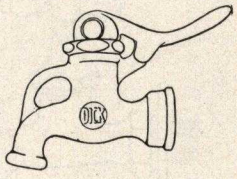


"Dick" Combination Swinging Spout Laundry Tray Fixture

Quick Compression. Rough Nickel Plated.

"Dick" Filling Station Faucet

Rough Nickel Plated self-closing faucet with ¾-inch hose thread.



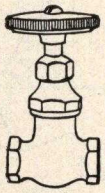
Furnished with genuine swivel discs encased. Male or female connections. 8 inches center to center. Anti-splash Strainer

Nickel or Genuine "Crodon" Chromium Plated

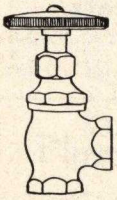
See Following Page

Plumbers' Brass Goods

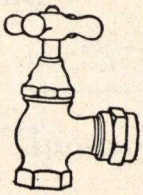
"Dick" Compression Stops



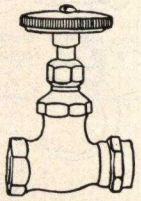
Straight pattern stop, with dome bonnet or stuffing box. Iron pipe threads both ends.



Angle pattern stop, with dome bonnet or stuffing box. Iron pipe threads both ends.

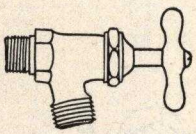


Angle pattern stop, with one end slip joint and other end for iron pipe. Furnished with dome bonnet or stuffing box.



Straight pattern stop, with one end slip joint and other end for iron pipe. Furnished with dome bonnet or stuffing box.

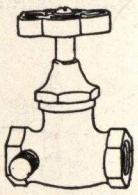
"Dick" Nickel Plated Compression Stops are made in 3/8 and 1/2-inch iron pipe sizes, and are furnished with Wheel, Tee, China Indexed or All China Handles.



Boiler Drain Faucet

"Dick" Compression Boiler Drain Faucet. Rough N. P. with tee or wheel handle. 1/2 and 3/4-inch iron pipe thread.

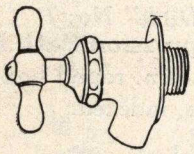
"Dick" Red Metal Compression Stop and Waste. Extra heavy pattern. Furnished with single or double waste, dome bonnet or stuffing box, wheel handle or lock shield. Sizes 1/2 or 3/4-inch iron pipe.



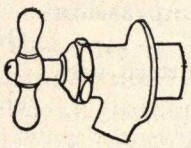
Stop and Waste

"Dick" Compression Wash Tray Faucets

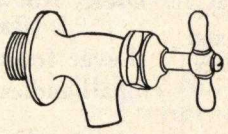
Polished Brass or Polished and Nickel Plated



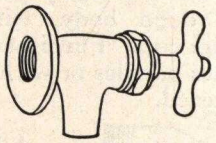
Stub pattern, flanged male —1/2 or 3/4-inch iron pipe sizes.



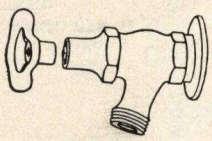
Stub pattern, flanged female—1/2-inch iron pipe size.



Heavy pattern, flanged male—1/2 or 3/4-inch iron pipe sizes.



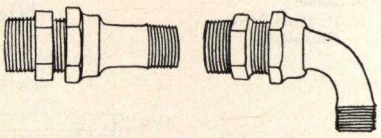
Heavy pattern, flanged female — 1/2-inch iron pipe size.



Sill Faucet

"Dick" Compression Sill Faucet. Heavy pattern, flanged female, 1/2 or 3/4-inch iron pipe thread. Also furnished with combination loose key, wheel.

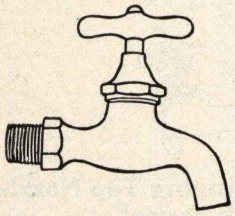
"Dick" Boiler Coupling. Ground face; 3/4-inch iron pipe male thread. Furnished in yellow or red metal, semi-finished or rough brass.



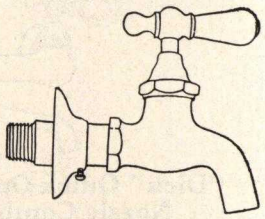
Boiler Couplings

"Dick" Sink Faucets

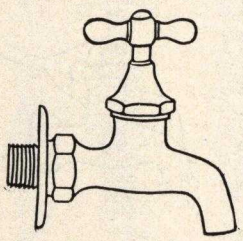
"Dick" sink faucets are made with plain spout or with hose end, and are furnished in rough brass, polished brass, polished and nickel plated or polished and genuine "Crodon" Chromium Plated. Shoulder type faucets can be supplied 3/8, 1/2 or 3/4-inch iron pipe thread; Flanged types in 1/2 or 3/4-inch iron pipe thread. On all styles handles are furnished as selected; on compression faucets either tee, four ball china indexed or all china handles and on quick compression faucets either brass lever or china lever handles.



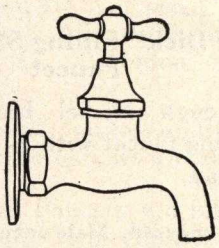
Tee handle compression faucet with hexagon, male thread, no flange.



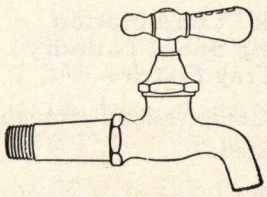
Quick compression faucet, set screw flange, with china lever handle, indexed.



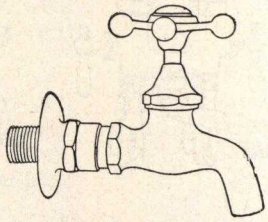
Male flanged compression faucet with hexagon, with tee handle.



Female flanged compression faucet with hexagon, with tee handle.



Quick compression S. O. T. faucet, taper shank, no flange, with china lever handle, indexed.

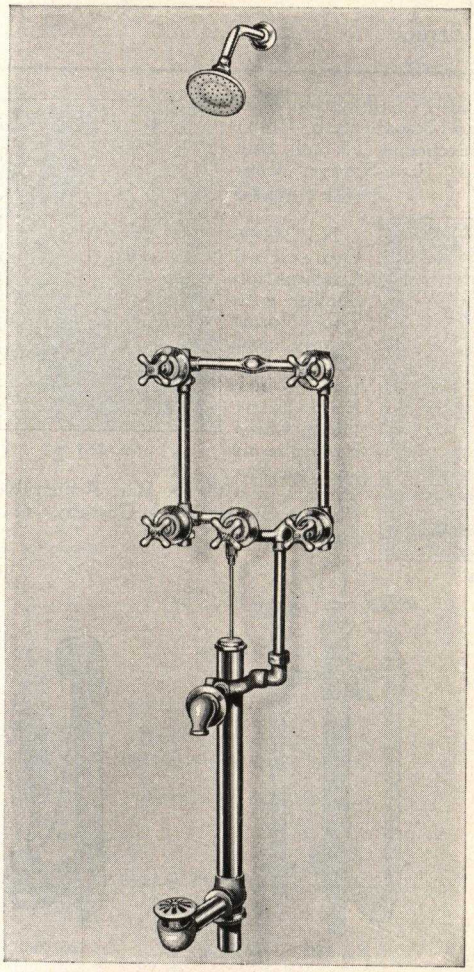


Compression faucet, extension flange, with 4-ball china indexed handle.

Plumbers' Brass Goods

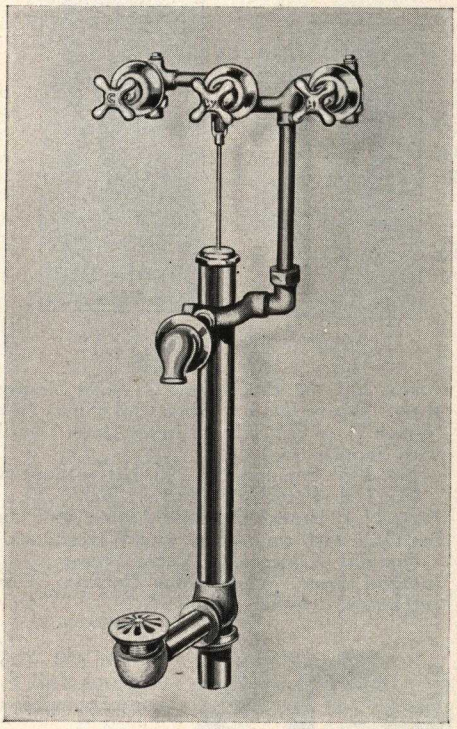
"Dick" Combination Fixtures

Genuine "Crodon" Chromium Plated or Nickel Plated if desired.



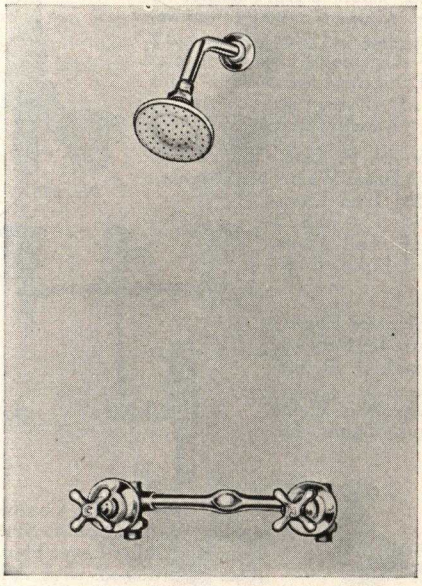
No. 5000

No. 5000 Combination Bath and Shower Fixture. ½-inch Control Valves with renewable seats, union connections, heavy All Metal Index Handles, Metal Escutcheons, Metal Tub Nozzle and 2-inch standing waste. Bent shower arm with Metal Escutcheon, swivel joint and 4-inch cast brass shower head. Brass pipe connection between valves. All tested.



No. 5010

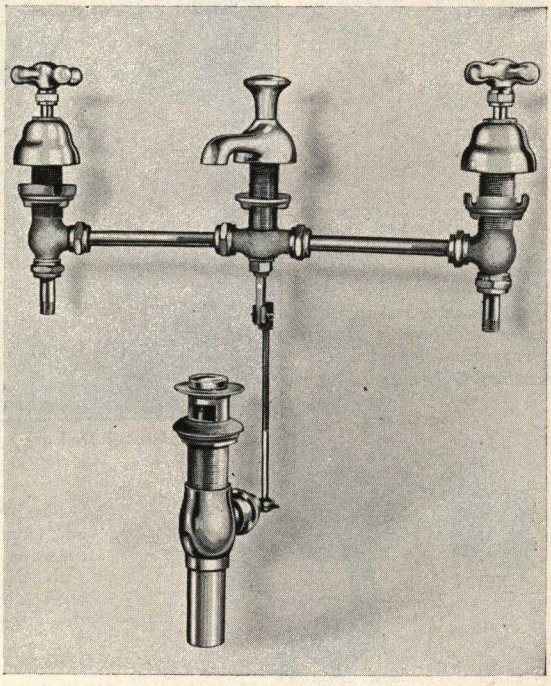
No. 5010 Bath Fixture. ½-inch Control Valves with renewable seats, union connections, heavy All Metal Index Handles, Metal Escutcheons, Metal Tub Nozzle and 2-inch standing waste. ¾-inch iron supporting plate. Brass pipe connections between valves and nozzle. All tested.



No. 5020

No. 5020 Shower Fixture. ½-inch Control Valves with renewable seats. Union connections, heavy All Metal Index Handles and Metal Escutcheons, bent shower arm with Metal Escutcheon, swivel joint and 4-inch cast brass shower head. Cast brass connections between valves. All tested. Valves furnished either 8-inch or 11-inch center to center.

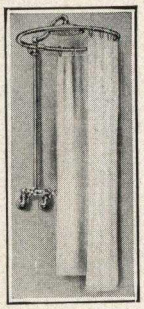
No. 5030 Lavatory Fixture. Control Valves with renewable seats, swivel discs and encased washers. Furnished with ¼-inch threaded tails. Heavy All Metal Index Handles and Metal Escutcheons. Heavy Metal Nozzle 3½ inches long. Pop-up waste controlled by an All Metal Knob and fitted with a 1¼-inch tail piece.



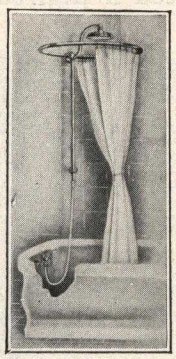
No. 5030

EHRENBERG BRASS MANUFACTURING CO., Inc. NEW YORK, N. Y.

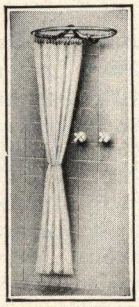
Office and Factory: 133-137 Mulberry Street



No. 200



No. 210



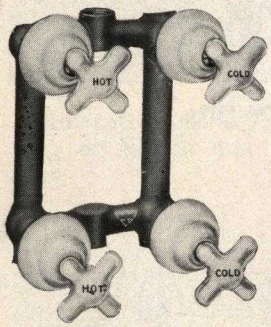
No. 220

No. 200—N. P. Exposed 2 Valve Shower with 24-inch N. P. Ring. White Duck Curtain and Pins. ½-inch Supplies to wall. (6-inch C. to C.) China Index Brass Handles. Can also furnish with Supplies to floor.

No. 202—Same as No. 200, but without Ring, Curtain or Pins.

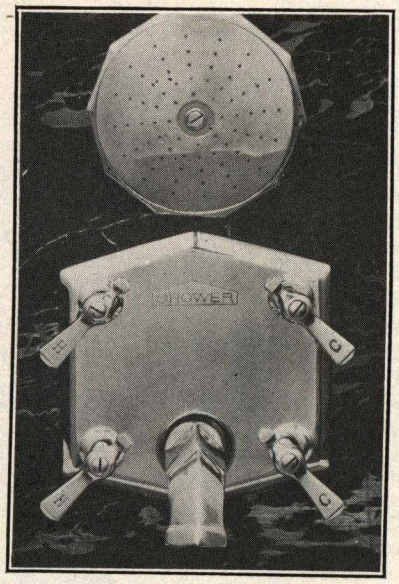
No. 210—Portable Shower, ¾-inch O. D. x 24-inch Brass Round Ring, N. P. Brass Riser Pipe, Adjustable Flanges, Corrugated Rubber Hose with connection, and White Duck Curtain.

No. 220—Concealed 2 Valve Shower. 24-inch N. P. Ring with Integral Arm. White Duck Curtain. China Handles and Escutcheons. (6-inch C. to C.)



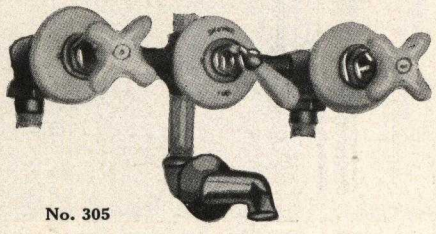
No. 230

No. 230—Concealed 4 Valve Shower and Tub Body. China Handles and Escutcheons. (6-inch C.to C.)



No. 230 De Luxe

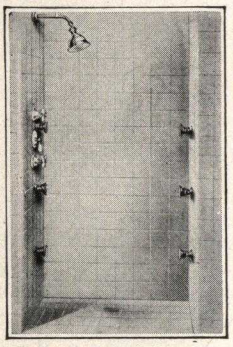
No. 230—De Luxe Concealed 4 Valve Combination Shower and Tub Filler. Over the Rim Nozzle, 5-inch Ball Joint Shower Head. Brass Handles and Escutcheons.



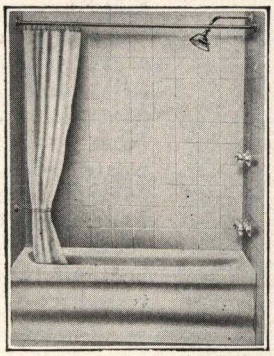
No. 305

No. 305—Concealed "Converto" Combination Shower and Tub Fixture with Over the Rim Nozzle. ½-inch I. P. S.

No. 243—Concealed Combination Mixing Valve Shower and Needle Bath. China Handles and Escutcheons. 5-inch Ball Joint Shower Head. Rose Sprays. Control Valves.



No. 243

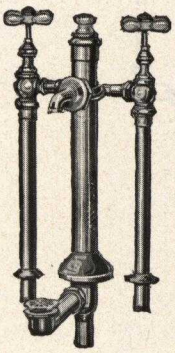


No. 244

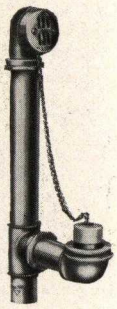
No. 244—Concealed Combination Shower with Top Nozzle Supply and Waste Fixture. 5-inch Ball Joint Head. China Escutcheons and Handles. ¾ or 1-inch O. D. Bar, Adjustable Flanges, White Duck Curtain. (11-inch C. to C.)



No. 235

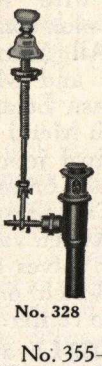


No. 260



No. 320

No. 235—Concealed 1½-inch Trip Lever Connected Waste and Overflow. Lever Handle and Overflow Strainer.

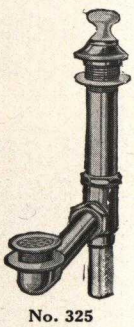


No. 328

No. 260—N. P. Exposed Top Nozzle Supply and Waste Bath Fixture. 2-inch Waste. China Knob and Handles. ½-inch Supplies. (11-inch C. to C.)

No. 320—Concealed Cast Connected Waste and Overflow for Built-in Tubs. 1½-inch I. P. Thread on Tee and ½-inch O. D. 4-inch Tubing Tail Piece.

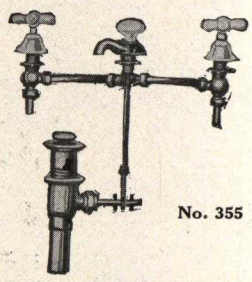
No. 325—N. P. Cast China Knob, Unique Lift Basin Waste for Porcelain or Enameled Iron Lavatories. With 1¼-inch O. D. x 6-inch Tail Piece. 10-inch Tail Piece, if desired.



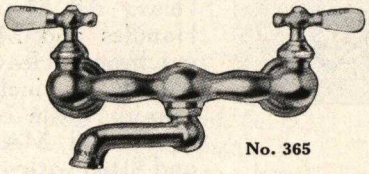
No. 325

No. 355—N. P. Combination Pop-up Waste and Supply Fixture for Pedestal Lavatories. With 1¼-inch O. D. x 6-inch Tail Piece.

No. 328—N. P. Pop-Up Basin Waste with China Knob and China Escutcheon.



No. 355



No. 365

No. 365—N. P. Combination Swing Spout Sink Faucet. China Lever Handles. Furnished with Adjustable Flange and Sediment Strainer.

All Fixtures can be furnished with either Brass or China Handles, Bell or Flat Escutcheons, in Nickel or Chrome Plate.

EXETER BRASS WORKS EXETER, NEW HAMPSHIRE

Representative

New York, N. Y., Henry Stein, 50 Cliff Street

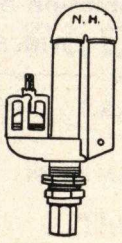
Plumbers' Brass Goods

N. H. Cage Valves



Rough Couplings	Each
1¼-inch	$2.00
1½-inch	2.50
2 -inch	4.00
N. P. Couplings	
1¼-inch	2.20
1½-inch	2.70
2 -inch	4.30

N. H. Siphon Valves



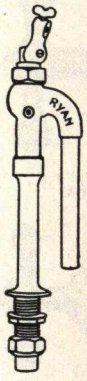
Rough Couplings	Each
1¼-inch	$3.50
1½-inch	4.00
2 -inch	10.00
N. P. Couplings	
1¼-inch	3.70
1½-inch	4.20
2 -inch	10.30

N. H. Cone Siphon Valves

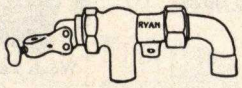


Rough Couplings	Each
1¼-inch	$3.00
1½-inch	3.50
N. P. Couplings	
1¼-inch	3.20
1½-inch	3.70

Ryan Ball Cocks



Ryan Elevated

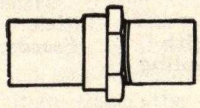


Ryan Top Supply

Top and bottom supply for both high and low tanks.

Furnished in all sizes.

Plain Couplings

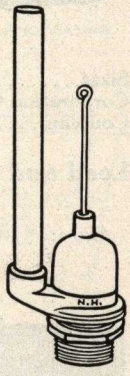


4252

Plain or ground face, sizes ⅜-inch to 2-inch.

N. H. Flush Valves

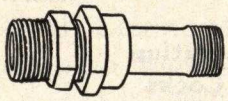
For Low Down Tanks



These valves are made of bronze and copper. Weight thirty-three ounces. Very simple in construction, positive in action and will give years of satisfactory service.

No parts to corrode. Hollow hard rubber ball. Flat leather seat washer.

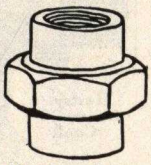
Boiler Couplings for Iron and Copper Boilers



4258

Iron or brass pipe thread, male or female, ground or plain face.

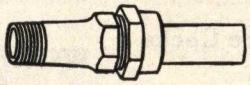
Standard Hexagon Brass Union



Hexagon Union

Semi-finished, finished and nickel plated. ⅛-inch to 3-inch.

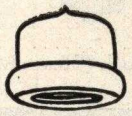
Water Back Couplings



4264

Long or short patterns for iron or brass pipe, male or female, ground or plain face.

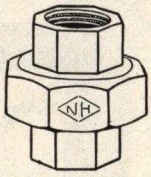
Acorn Caps



4721

Finished or nickel plated for standard iron or brass pipe.

N. H. Octagon Union Extra Heavy

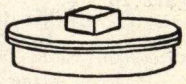


Octagon Union

Rough, finished and nickel plated in brass or composition.

⅛-inch to 3-inch.

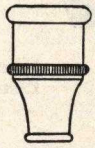
Trap Screws



4268

Regular and wide flange, finished or nickel plated, sizes ½-inch to 6-inch inclusive.

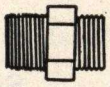
Croton Filters



Filters

¾-inch female hose thread. Polished brass or nickel plated.

Hose Nipples



Hose Nipples

Male and female. Sizes ½-inch to 2½-inch.

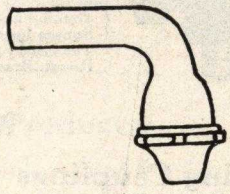
Brass Sewer Valves



Brass Sewer Valve

Made in sizes from 2-inch to 6-inch.

Vacuum Valves



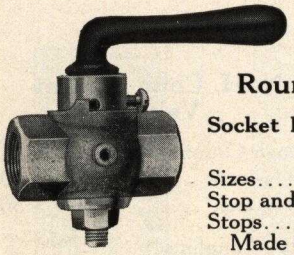
Vacuum Valve

For iron, brass or lead pipe.

P. J. FLANNERY CO. NEW BRITAIN, CONN.

General Office and Factory—33 Whiting Street

Plumbers' Brass Goods



Stop and Waste Cocks, Round Way Newport Pattern

Socket Head Lever Handle or Solid Tee Handle

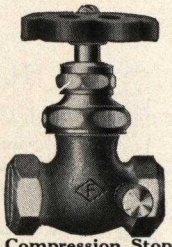
Sizes	5/8	3/4	1
Stop and Wastes	$36.60	$50.40	$90.00
Stops	36.00	49.80	88.80

Made of Steam Metal.

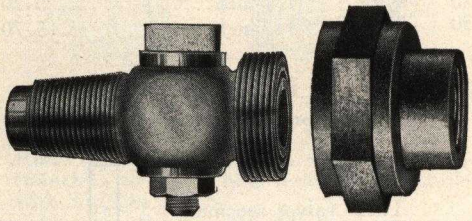
Compression Stop and Waste Cock

With Stuffing Box

Sizes	1/2	3/4	1
List Each	$1.45	$1.90	$4.50



Compression Stop and Waste



Lead Flanged Corporation Cocks

—

With Coupling

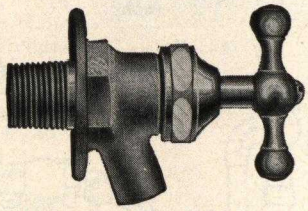
Sizes	5/8	3/4	1
Corporation Cock	$23.40	$30.00	$48.00
Coupling	3.60	4.20	6.00

Wash Tray Bibbs

Compression, Stub Pattern

Made in 1/2-inch size only.

Male	$18.60 dozen
Female	20.40 dozen



Wash Tray Bibbs

Lead and Iron Flanged Couplings—(Not Illustrated)

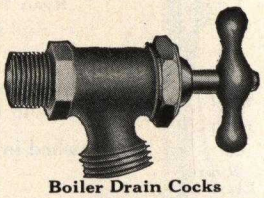
Made of Steam Metal

Sizes: 5/8-inch, $15.00; 3/4-inch, $18.00; 1-inch, $24.00.

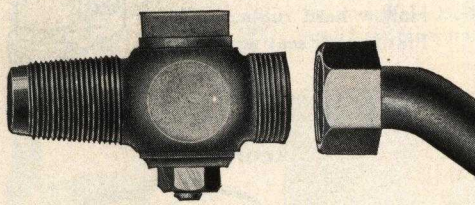
Boiler Drain Cocks

Rough Nickel Plate—Iron Pipe

1/2-inch I. P. male	$19.80 dozen
1/2-inch I. P. female	19.20 dozen



Boiler Drain Cocks



Corporation Cocks

—

With Coupling

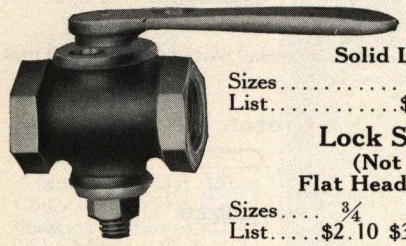
Sizes	5/8	3/4	1
Corporation Cock (Steam Metal)	$39.60	$50.40	$78.00

Boiler Draw-Off Cocks

Made in 3/4-inch size only.
Rough Brass.



Boiler Draw-Off Cock



Lock Service Cocks

Solid Lever Handles

Sizes	1/2	3/4	1
List	$1.70	$1.90	$2.85

Lock Service Cocks

(Not Illustrated)
Flat Head—Rough Brass

Sizes	3/4	1	1 1/4	1 1/2	2
List	$2.10	$3.40	$5.10	$7.25	$12.20

Waterfront and Boiler Couplings

Straight or Bent Pattern
Plain Joint—Ground Joint

Sizes—1-inch I. P. x 1/2-inch I. P.; 1-inch I. P. x 3/4-inch I. P.; 1-inch I. P. x 3/4-inch Fine Thread. 1-inch Iron Pipe x 3/4-inch Lead Pipe.

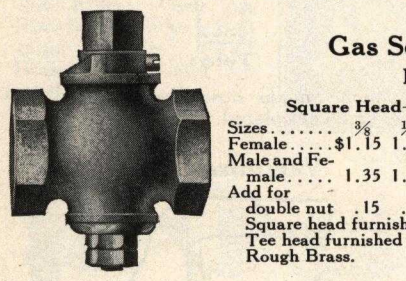
Red or Yellow Metal—Tested.



Water Front Couplings Male



Boiler Couplings Female



Gas Service Cocks

Female

Square Head—Stop and Check Pin

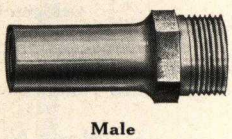
Sizes	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Female	$1.15	1.30	1.55	2.40	3.70	5.10	8.75
Male and Female	1.35	1.50	1.80	2.70	4.10	5.95	9.90
Add for double nut	.15	.15	.20	.25	.35	.45	.60

Square head furnished up to 2 inches.
Tee head furnished up to 1-inch.
Rough Brass.

Soldering Nipples

Male or Female—Red or Yellow Metal

Sizes	3/8	1/2	3/4	1
List, per Dozen	$3.60	$4.20	$6.00	$8.40
Sizes	1 1/4	1 1/2	2	
List per Dozen	$10.80	$15.00	$21.00	



Male

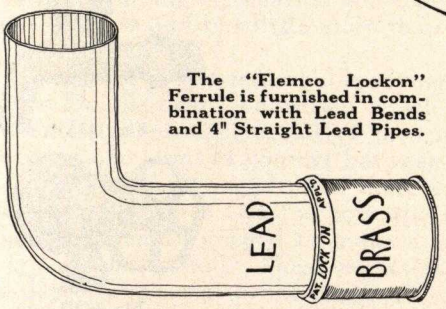
Write for catalog and prices on the following:

Reducing Couplings **Goose Necks** **Basin Faucets** **Sill Faucets**
Copper Pipe Couplings **Petroleum Lock Faucets**
Petroleum Oil Faucets **Oil Fill Caps and Vent Caps for Oil Supply Tanks**

THE FLEMM LEAD COMPANY, INC. LONG ISLAND CITY, N. Y.

Bradley Avenue and School Street

FLEMCO TRADE MARK
THE FLEMM LEAD CO. INC.
LEAD PRODUCTS



The "Flemco Lockon" Ferrule is furnished in combination with Lead Bends and 4" Straight Lead Pipes.

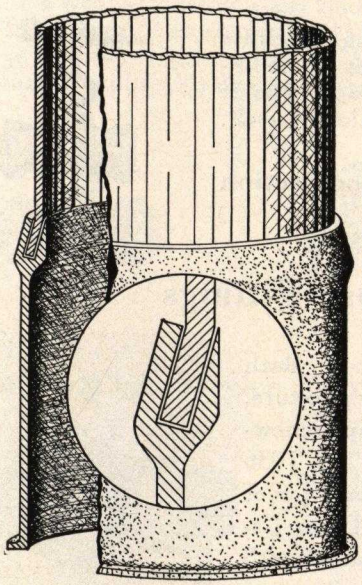
TRADE MARK REG. U.S. PAT. OFF.

The "Flemco Lockon" Brass Ferrule

The "Flemco Lockon" joint, when used for connecting ferrules to lead pipe, produces a positively "one-piece" construction. It provides an absolutely water and gas tight job, able to withstand much more pressure than either the ferrule or the pipe.

The patented "angle groove" spreads the pipe in the groove, locks the ferrule on and leaves a smooth waterway inside.

The "Flemco" used in piping is easier than wiping.



Patent Applied For

Fit-All Cleanout Plugs

For Replacement Wherever a Cleanout Plug Is Required
Absolutely Gas and Water Tight

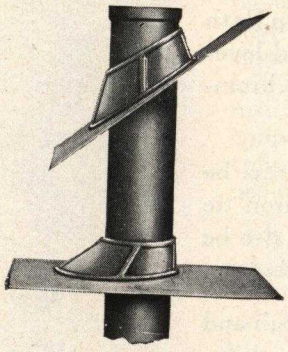
The Fit-All Cleanout Plug consists of a strong cast iron core with a patented taper-threaded lead bushing.

1—The patented thread makes it fit all cleanout bodies within a wide range.

2—The patented thread of special composition lead produces an absolutely gas and water tight fit.

3—Because of the non-rusting special lead it will readily unscrew when desired.

Made in sizes to fill all requirements.



Patent No. 1680921

Paramount Adjustable Roof Flange

Galvanized—Copper—All Lead

1—One piece adjustable flange. No movable parts.

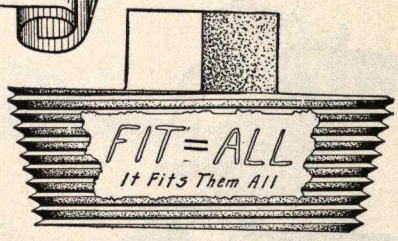
2—Absolutely leak proof joint between base and collar.

3—Perfect fit for flat and pitched roofs.

4—Higher and heavier collar.

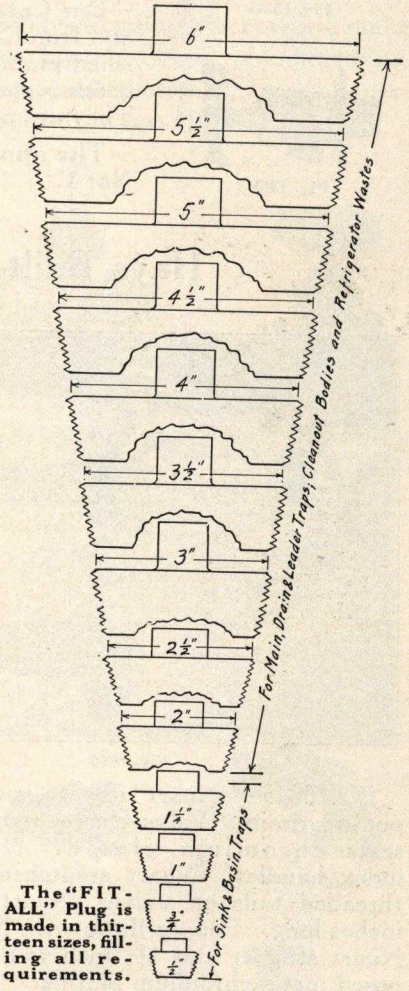
5—Patented reinforced beads.

6—Heavy caulking ring assures water tight job.



Patent No. Re. 18100, Canadian Patent No. 293591. The name Fit-All registered in U. S. Pat. Off.

Prices and Discounts on Application



The "FIT-ALL" Plug is made in thirteen sizes, filling all requirements.

Also Manufacturers of the following "Flemco" Lead Products:

Lead Pipe
Lead Wool
Lead Traps and Bends
Caulking Lead
Sheet Lead
Block Tin Pipe
Bar Solder and Wire Solder
Lead and Iron Ferrules
Drum Traps
Lead Burning of Every Description

Prices and Discounts on Application

Established 1869

HAYS MANUFACTURING CO. ERIE, PA.

12th and Liberty Streets

Hays Compression Fittings

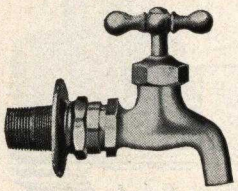


Fig. 142E

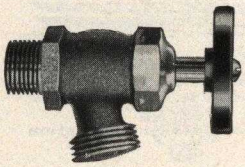


Fig. 153G

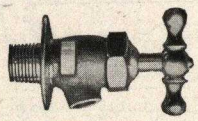


Fig. 156F

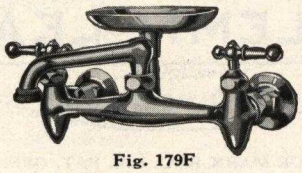


Fig. 179F

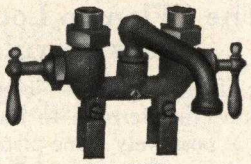


Fig. 188D

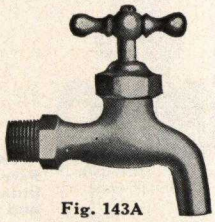


Fig. 143A



Fig. 178D

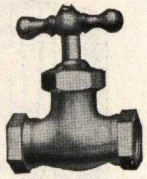


Fig. 157A

Our Catalog "Street to Bath" shows our complete line of Brass and Iron Goods for use from the Service line in the street to the finished plumbing in the house. It is so arranged that each type of goods is classified under a separate heading and is a catalog in itself. They are punched to fit the T. E. B. Binder.

The above Items are a Selection from Our Catalog Section No. 1.

Hays Built-in Bath, Shower and Lavatory Fittings

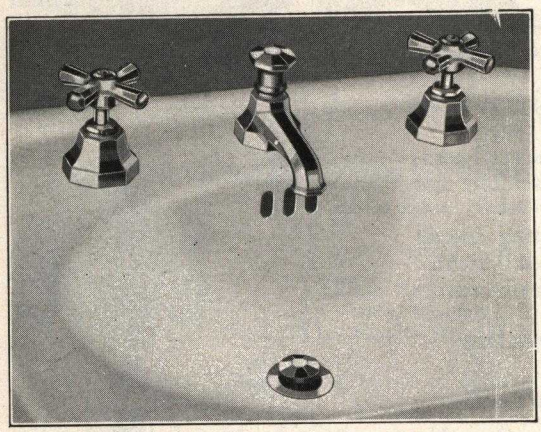


Fig. 8645

Fig. 8645—"Nuart" lavatory fitting with pop-up drain. Valves have high renewable seats chromium plated. Nuart metal index handles. Nuart escutcheons, ¼-inch threaded tails on valves, Nuart spout 3¾ inches long. Pop-up drain with Nuart knob, Nuart stopper and 1¼-inch tail piece. Exposed metal chromium plating.

Hays built-in bath, shower and lavatory fittings can be made in china, plain brass, or Nuart design and in different combinations than shown above.

The above Items are a Selection from Our Catalog Section No. 2.

Fig. 830—"Haysco" Built-in Bath and Shower Diverting Valve Fixture, ½-inch By-Pass valves with High renewable Chromium Plated Seats, No. 1036 Handles on Bath Valves and Brass Lever Handle on Diverting Valve, Brass Escutcheons and escutcheon locknuts with 1-inch adjustment, Brass over rim nozzle, 8-inch shower arm with 4-inch Brass head. 1½-inch Trip Lever Pop-up Bath Waste with Brass escutcheon and lever handle. All exposed metal Hays chromium plating.

Hays Built-in Bath Fittings can be used with or without malleable iron tie plate. The regular tie plate can also be furnished with adjustable side brackets.

Hays also furnishes combined tub and shower fixtures with separate controls for the shower and also mixing valve control.

Erico Rough Brass Ground Joint Unions are furnished on inlets and outlets of all Bath Valves.

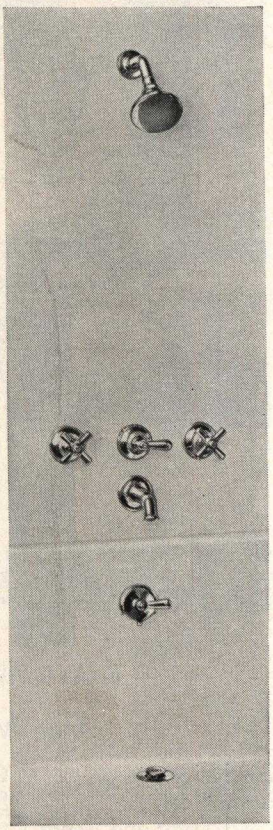


Fig. 830

Hays Copper Pipe Connections

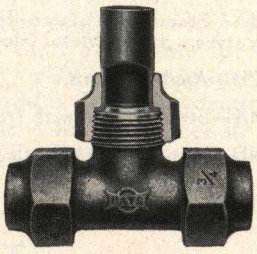
Patented Aug. 11, 1931, Dec. 29, 1931

Copper Pipe, instead of being the most costly to install, as it used to be, can now be fitted and joined at less cost, with Hays Copper Pipe Connections.

The "Hays 90" flange is formed with a special tool and a few strokes of a hammer. By actual tests this is one of the strongest connections made.

The "Hays 90" Double Seal Connection

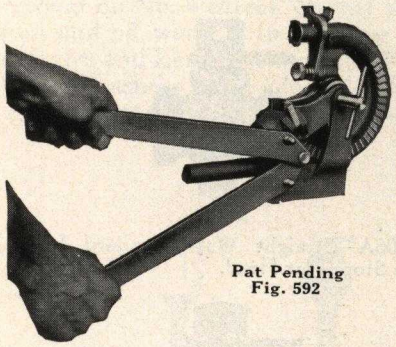
The Hays Copper Plumbing Method provides a plumbing installation at a cost less than that of brass and but little more than wrought iron or steel.



Tee

The secret of this remarkable saving is in the Hays Double-Seal Connection which employs an entirely new and exclusive principle. Instead of one point of contact between the connection and the flanged pipe, there are two—because it requires two for both the tightness and the strength needed to make a joint permanently leakproof. These points of contact are a 45-degree and a 90-degree angle seat in the connection. The 45-degree seat holds the pipe in a wedge, making a seal that is absolutely tight. The 90-degree seat is the shock absorber. It (1) locks the pipe, (2) provides a second seal of positive tightness, and (3) protects the 45-degree seal by absorbing all pulling strains and vibrations.

The Hays Bending Machine



Pat Pending
Fig. 592

The Hays Bending Machine will make a perfect bend in Copper plumbing pipe. Its simple construction and ease of operation are only a few of its advantages.

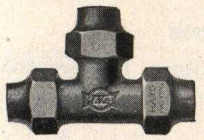


Fig. 500



Fig. 525

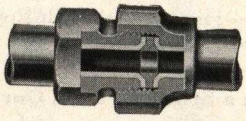


Fig. 530

Copper Pipe Service Connections—For Water Works



Fig. 108E

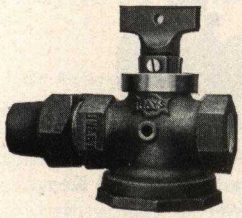


Fig. 82C

Corporation stops are of approved construction. All mandrel threads are the same as before so that your present equipment can be used. Main end threaded as per tap in use and outlet end is increased iron pipe.

Sizes furnished are ½, ¾, 1, 1¼, 1½ and 2 inches, covering a complete range of corporation stops with copper pipe service connections, as well as separate connections to meet any copper service pipe installation requirement. Also male thread curb stops with copper service pipe connections so that direct copper connection can be made without the use of a separate connection.

Write for Complete Literature and Price List for T. E. B. Binder.

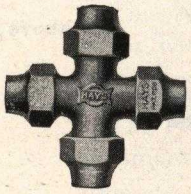


Fig. 565



Fig. 185S

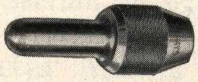


Fig. 128C



Fig. 120J

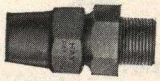


Fig. 120G



Fig. 121A

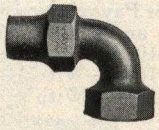


Fig. 120M

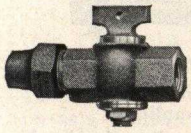


Fig. 79C

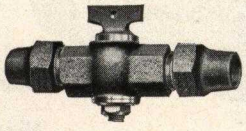


Fig. 79D

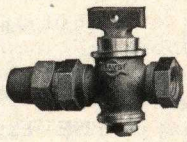


Fig. 54C

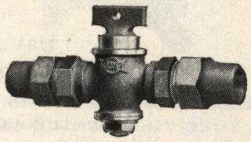
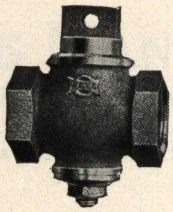


Fig. 54E

The above Items are a Selection from Our Catalog Section No. 3

Gas Service Stops



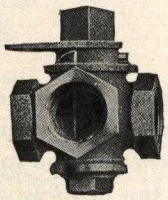
271A

271A—Straight Way Special Weight Gas Stop with Flat Head.



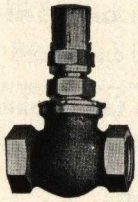
206A

206A—Straight Way Standard Lock Gas Stop, Flat Head.

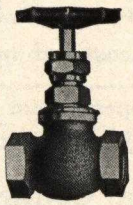


219B

219B—Standard Lock Gas Stop, Three Way with Check Pin. Square Head.



272A



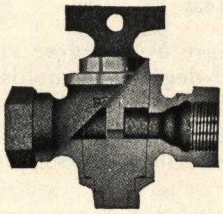
274A

272A—Standard Pattern Lock Shield Gas Valves. Steam Metal Globe Pattern.

272B—Angle Pattern.

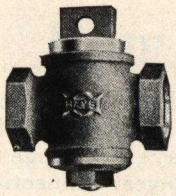
274A—Steam Metal with Iron Wheel.

274B—Same as 274A Angle Pattern.



401A

401A—High Grade, High Pressure Gas Stops with Drilled Solid Plug, with Tee Head.



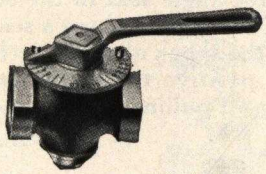
235A

235A—Round Way, Standard Pattern, Gas Stop with Flat Head.



221A

221A—Straight Way, Heavy Gas Service Stop with Flat Head.

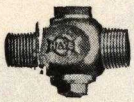


293B

Graduated Dial Stop. Polished Brass Lever Handle.

The above Items are a Selection from Our Catalog Section No. 4

Water Service Products

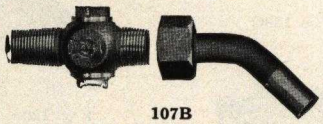


106A

Payne's Pattern

For Payne's "Old Style" and No. 1 and No. 2 Eclipse Machines

106A—Male, Main end listed size, outlet Increased size, I. P. Threads.



107B

Standard Pattern

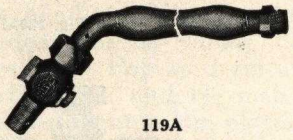
Inlet and Outlet Ends, Water Works Standard, Formerly M. C. C. Thread

For Payne's Nos. 1½ and 2½ New Eclipse and Mueller Machines, Screw Plug

107A—With Straight Coupling.

107B—With ⅛ Bend Coupling.

107C—With ¼ Bend Coupling.

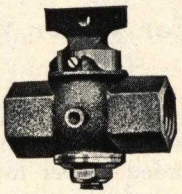


119A

Hand Wiped Joints

Lead Goose Necks with Either Male or Female Nipples

Note—When Ordering Specify Fig. No. Corp. Stop Wanted.

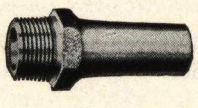


80A

Newport Pattern Round Way, I. P.

80A—With Brass Tee Handle with Drain.

79A—Same as 80A without Drain.



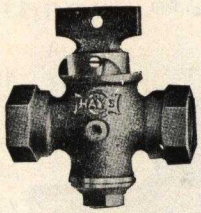
129A

129A—Soldering Nipples, Standard Male.

129B—Standard Female.

129E—Extra Heavy Male.

129F—Extra Heavy Female.



55A

Extra Grade, Solid Handle

55A—For Iron Pipe, with Drain.

54A—Same without Drain.



82B—Patented

Extra Grade, Inverted Key, Round Way

82B—For Iron Pipe, with Drain.

82A—Same without Drain.



119B

Lead Goose Necks with Lead Flange Union Couplings

Note—When Ordering Specify Fig. No Corp. Stop Wanted.

The above Items are a Selection from Our Catalog Section No. 5

Iron Goods for Water and Gas

Original Hays-Erie Extension Service Box for Water and Gas

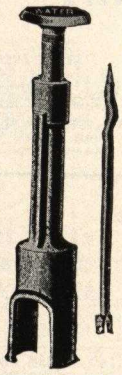


Fig. 301A

Fig. 301A—The base is cast iron and the upper portion is constructed of standard 1-inch pipe fitted into the base and supported by the flat Brass Spring. The lower end of pipe is forged to fit in a slot in the base preventing the pipe from turning. The cover is of cast iron with threaded brass bushing inserted where it screws onto pipe. The key for shutting off is provided with a spanner. The rod is of wrought iron with socket forged on lower end to fit head of stop. Upper end is forged to fit shut-off key. The boxes are heavily coated inside and out with asphaltum varnish. Specify whether covers are to be marked "Water" or "Gas" when ordering. Made in 6-inch and 12-inch adjustments and from 2½ to 7-feet deep and with bases for stops ½-inch through 2-inch sizes.

Hose Boxes



Fig. 312A Cast Iron Square Top with Lock Attachment

These Hose Boxes are designed for Parks, Golf Grounds or Lawn Hose connection where it is only necessary to lay the piping a few inches under ground. No waste outlet is provided. Hose Boxes made in ¾ and 1-inch sizes and the length over all is 6½ inches.

Original McNamara Compression Valve Dry Pipe Hydrant and Street Washers

These Hydrants and Street Washers are thoroughly protected, both at top and bottom so that they are not affected by frost in the coldest weather. All working parts are made of brass, to prevent their rusting together and allow greater wear.

The Original bears our name. If offered otherwise they are imitations and are not interchangeable in working parts.

The same key which locks the cover on No. 4 Street Washer also fits the Valve Stem for turning on and off water. In ordering always give figure number. State Styles and Lengths (in ground) required. These Hydrants and Street Washers are made in lengths from 3-feet to 6-feet in 6-inch adjustments and in ¾, 1, 1¼ and 1½-inch sizes.



No. 1
306A



No. 2
306B



No. 5
306C



No. 3
307A



No. 4
307B

The No. 3 has a round cover without Lock Attachment.

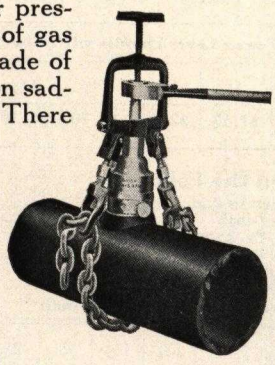
The No. 4 has a Lock Attachment and has a square top.

The above Items are a selection from our Catalog Section No. 6

Tapping Machines for Gas and Water Mains

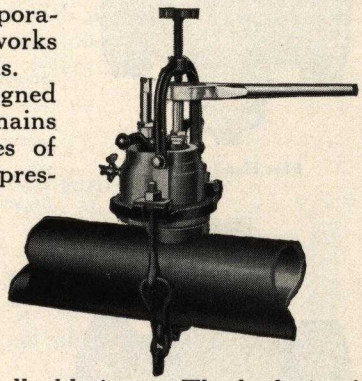
High and Low Pressures

Payne's Patent "Daisy" Gas Tapping Machine



For tapping gas mains under pressure or dry mains. No escape of gas while drilling and tapping. Made of bronze metal with malleable iron saddles to fit different size mains. There is a stuffing box at the top of body with a rubber gasket between the saddle and main, and also between the machine and saddle. A thumb screw valve on the side may be opened for oiling. Complete equipment to make 1-inch tap weighs 22 pounds.

Erie Drilling and Tapping Machine



For long main end corporation stops with water works standard or I. P. threads.

This machine is designed to tap gas and water mains and to insert all makes of corporation stops under pressure. The machine has few parts and is very easy to operate. It does not require any changes or disconnecting from the start to finish of the operation. The saddles, yoke and collar are of malleable iron. The body is of bronze. This machine has been used to insert stops under 100 pounds pressure and has given entire satisfaction.

The above Items are a selection from our Catalog Section No. 7

PETER HEALEY BRASS FOUNDRY COMPANY — EVANSVILLE, IND.

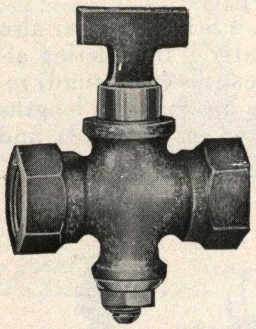
Established 1860

501-505 N. W. First Street

St. Louis, Mo., C. W. Ambler, 4507 McPherson Ave.
San Francisco, Cal., Jas. A. Riordan Co., 955 Bryant St.
Los Angeles, Cal., Jas. A. Riordan Co., 1600 E. Seventh St
Seattle, Wash., Jas. A. Riordan Co., 5319 Admiral Way

Representatives

Chicago, Ill., J. H. Lehnen Co., 1510 So. Newberry Ave.
Cincinnati, Ohio, H. Clemmer Smith & Co., 3606 Edwards Road.
Philadelphia, Pa., Jas. B. Colladay, 34 S. 17th St.
Nashville, Tenn., Louis Williams & Co.



Tee Handle Stop

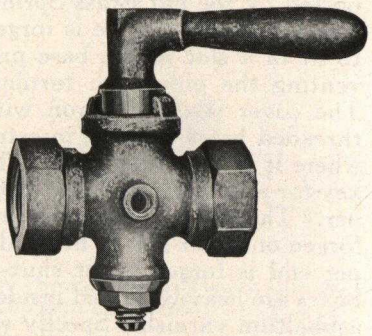
Stops and Stops and Wastes
Tee or Lever Handle
List Price Per Dozen

Flatway

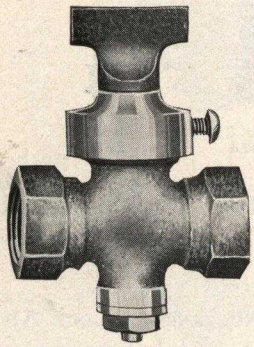
Size.....Inches	¼	⅜	½	⅝	¾	1	1¼	1½	2
Stop, Iron Pipe	19.80	20.40	21.00	29.40	36.00	52.80	89.40	149.40	258.00
Stop and Waste, I.P.	20.40	21.00	21.60	30.00	36.60	54.00	91.20	152.40	264.00
Stop, Lead Pipe	.....	.....	23.40	33.00	40.80	60.00	100.20	167.40	288.00
Stop and Waste, L.P.	.....	.....	24.00	33.60	41.40	61.20	102.00	170.40	294.00
Stop, L. & I. P.	.....	.....	23.40	33.00	40.80	60.00	100.20	167.40	288.00
Stop & Waste, L.&I.P	.....	.....	24.00	33.60	41.40	61.20	102.00	170.40	294.00

Roundway

Size.....Inches	¼	⅜	½	⅝	¾	1	1¼	1½	2
Stop, Iron Pipe	.....	25.20	26.40	36.00	46.20	73.80	120.60	197.40	342.00
Stop and Waste, I. P.	.....	25.80	27.00	36.60	46.80	75.00	122.40	200.40	348.00
Stop, Lead Pipe	.....	.....	28.80	39.60	51.00	81.00	131.40	215.40	372.00
Stop and Waste, L.P.	.....	.....	29.40	40.20	51.60	82.20	133.20	218.40	378.00
Stop, L. & I. P.	.....	.....	28.80	39.60	51.00	81.00	131.40	215.40	372.00
Stop & Waste, L.&I.P	.....	.....	29.40	40.20	51.60	82.20	133.20	218.40	378.00



Lever Handle Stop and Waste



Tee Handle Stop Cap Pattern

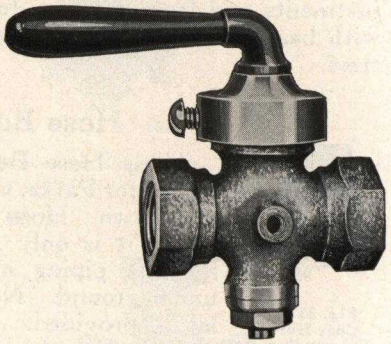
Stops and Stops and Wastes
With Tee or Lever Loose Malleable Iron Handles, With or Without Cap
List Price Per Dozen

With Cap

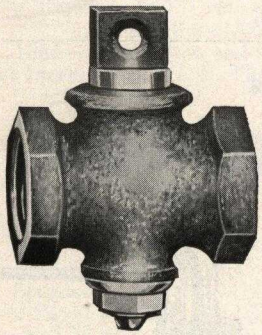
Size.....Inches	½	⅝	1
Stops	$21.00	$29.40	$52.80
Wastes	21.60	30.00	54.00

Without Cap

Size.....Inches	½	⅝	¾	1
Stops	$21.00	$29.40	$36.00	$52.80
Wastes	21.60	30.00	36.60	54.00



Lever Handle Cap Pattern Stop and Waste



Flat Head Gas Cock

Gas Cocks

No. 1—Standard Flat Head, Square Head, Tee or Lever Handle without check. 2½ and 3-inch in Flat and Square Head only.

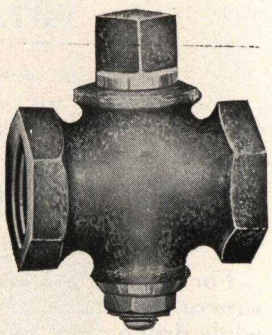
Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Standard...Each	$0.90	$0.90	$1.00	$1.10	$1.30	$2.10	$3.25	$4.60	$8.00	$17.50	$27.00

No. 2—Flat Head Lock Gas Cocks—½-Inch to 2-Inch

Size.....Inches	⅜	½	¾	1	1¼	1½	2
Standard.....Each	$1.30	$1.40	$1.60	$2.50	$3.85	$5.35	$9.00

No. 3—Flat Head, Square Head, Tee or Lever Handle with Check

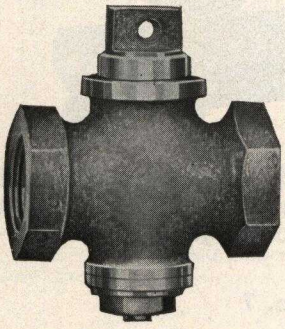
Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2
Standard.....	$1.05	$1.15	$1.30	$1.55	$2.40	$3.70	$5.10	$8.75



Square Head Gas Cock

Net Prices Quoted on the Following:

No. 4—Red Metal Natural Gas Cocks, ½-inch to 2-inch.
No. 5—High Pressure Gas Cocks, ¾-inch to 2-inch.
No. 6—Solid Lever Handle Lock Gas Cocks, ⅜, ½ and ¾-inch.



Flat Head Steam Cock

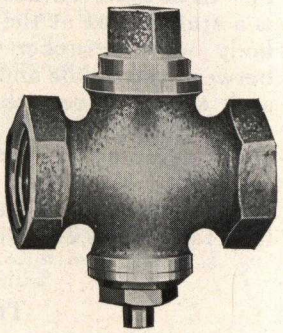
Steam Cocks

Standard Flat Head or Square Head, ⅛-inch to 3-inch

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Standard...Each	$0.85	$0.85	$1.00	$1.25	$1.70	$2.35	$3.70	$4.85	$7.30	$14.50	$22.50

Also manufacturers of Corporation Cocks, Ground Key Bibbs, Hydrant Cocks and Soldering Nipples.

WRITE FOR DISCOUNT SHEET



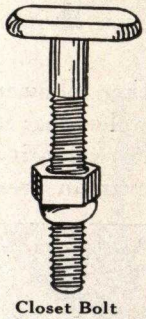
Square Head Steam Cock

HINDLEY MANUFACTURING COMPANY VALLEY FALLS, R. I.

Representatives:

Atlanta, Ga., Claude W. Cornelius, Glenn Bldg.
Baltimore, Md., J. F. Kriel, Jr., 3400 W. North Ave.
Boston, Mass., Norman Lewis & Co., 88 Broad St.
Chicago, Ill., Geo. S. Davis, 111 W. Washington St.
Cleveland, O., John R. Stiles Co., 700 The Prospect Fourth Bldg.
Kansas City, Mo., A. Shaffer, Hotel Ambassador.
San Francisco, Cal., W. W. Mitchell, Robert Dollar Bldg.
Syracuse, N. Y., John W. Stiles, 141 Hillsdale Ave.

Plumbers' Specialties



Closet Bolt

Brass Closet Bolts with Nickel Plated Brass Nuts and Washers

No. 3—¼x1¾.
No. 6—5/16x1¾.
No. 7—¼x2¼.
No. 76—5/16x2¼.
Standard brass bolts and nuts.

Closet Screws

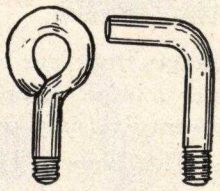
Solid Brass and Brass Plated with nickel plated brass nuts and washers. Packed 100 per carton.



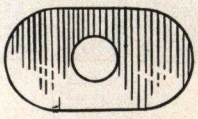
Closet Screw

Ball Cock Screws

Ball Cock Screws are furnished copper or commercial bronze.



Ball Cock Screws



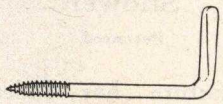
Oval Washer

Washers

Brass nickel plated oval and round washers for use with closet bolts and screws.

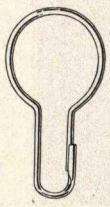
Tank Ell Screws

Tank Ell Screws are furnished solid brass or brass plated. Threaded one end.



Tank Ell Screw

Shower Curtain Hooks



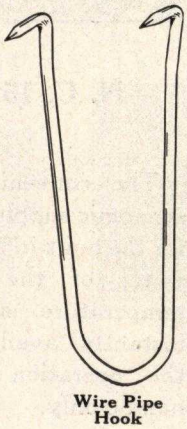
Brass Nickel Plated or Chromium Plated.

Wire Pipe Hooks

Packed in cardboard cartons of 50 to a carton.

List Price per 100

	3	4	6
⅜	$1.00	$1.15	$1.40
½	1.10	1.20	1.50
¾	.....	1.30	1.70
1	.....	1.50	2.00
1¼	.....	1.90	2.50
1½	.....	.....	2.70
2	.....	.....	2.90
	8	10	12
½	$1.90	.....	.....
¾	2.20	$2.80	.....
1	2.40	2.80	$3.20
1¼	3.00	3.50	4.00
1½	3.50	4.00	4.50
2	4.00	4.50	5.00



Wire Pipe Hook

Brass and Copper Refill Tubes

Made in lengths of 9, 10, 16, and 20 inches. Threaded one or both ends as required.

Brass Float Rods Sizes

6 in. long, 14-20 diameter.
7 in. long, 14-20 diameter.
8 in. long, 14-20 diameter.
9 in. long, 14-20 diameter.
10 in. long, 14-20 diameter.
12 in. long, 14-20 diameter.

Upper Tank Wires

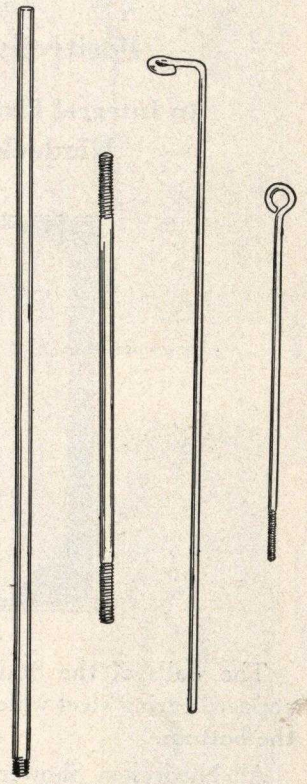
Made in sizes 8, 8½, 9, 10 and 10½ inches.

Lower Tank Wires

Made in sizes 5, 5½ and 6 inches.

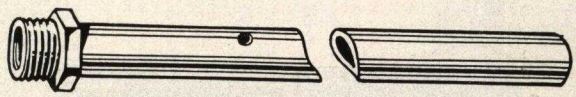
Brass Overflow Tube Size

11 inches long, 1, 1⅛ and 1¼-inch diameter.

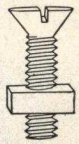


Refill Tube | Float Rod | Upper Tank Wire | Lower Tank Wire

Brass Boiler Tubes



Made of Brass Tubing with a threaded bushing attached, which will not work loose.
Made in ⅝-inch size. 4 feet and 4½ feet lengths. Special sizes to order.



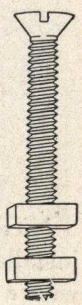


Cotter Pin

Brass or Iron Sink Bolts With Iron Nuts

Brass or Iron Sink Bolts with iron nuts. Lengths 1 and 2¼ inches.

Polished nickel plated or unfinished.



Cotter Pins

Brass Cotter Pins furnished in sizes from 3/64 to ½ inch in diameter and ½ to 4 inches in length.

HOFFMANN & BILLINGS MANUFACTURING COMPANY

138 E. Becher Street, MILWAUKEE, WIS.

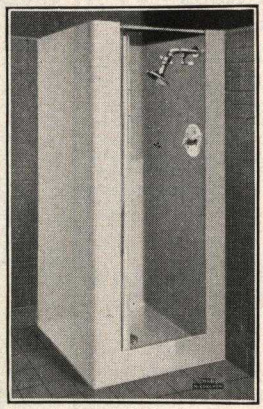
Established 1855

Niedecken Shower Stalls

Patented

Positively Leak-Proof

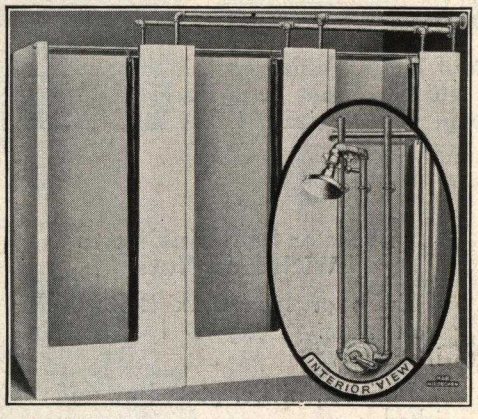
An Integral Fixture Complete with Niedecken Shower



The walls of the Stall are made of No. 10 gauge copper bearing steel which with the riser are welded to the bottom.

All Niedecken Shower Stalls must be finished with water-proof enamel paint, on exposed surfaces, after installation is completed.

Sizes are 30x32, 32x32, 36x36 inches. Heights are 6 feet.

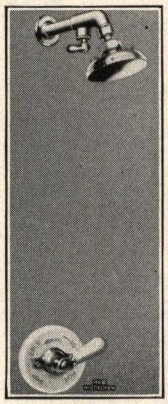


Niedecken Shower Stalls are furnished for battery installation in any desired number and are equipped with a special industrial type Niedecken Shower.

Sizes are 32x36, 36x36 inches. Heights are 6 feet.

N. C. 1100 Type Niedecken Shower

Patented

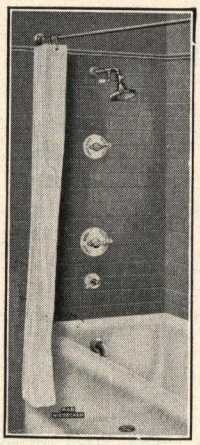


Complete with Concealed Mixer, Flow Control and Niedecken Shower Head.

The face of the Niedecken Shower Head is easily removed for cleaning; it is drilled to use the smallest quantity of water, distributing it over an area equal to a five inch head and many types of six inch heads; the water used ranges from four to ten gallons per minute at pressures from twenty to sixty pounds.



The Shower Head is sold separately only for replacement of heads on Showers already installed.



N. C. 1900 Niedecken Combination Shower

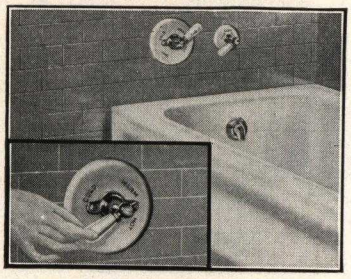
Patented

This fixture has independent Niedecken Mixer Controls for supplying the shower and bath tub; the supply to the bath tub can be either over rim or top nozzle supply.

N. C. 1570 Niedecken Bath Supply

Patented

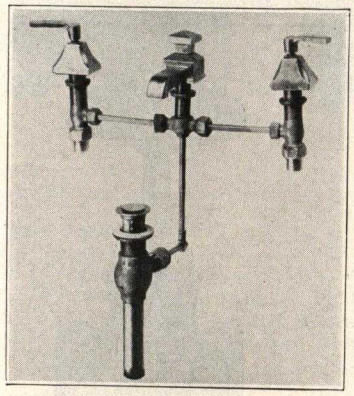
The convenient and economic supply control for the built-in bath tub; water of the desired temperature is almost instantly available by the operation of one handle only.



Established 1904

LEHNERT & COMPANY NEW YORK, N. Y.

General Offices—334-336 East 23rd Street



CUBILCO Basin Fixture

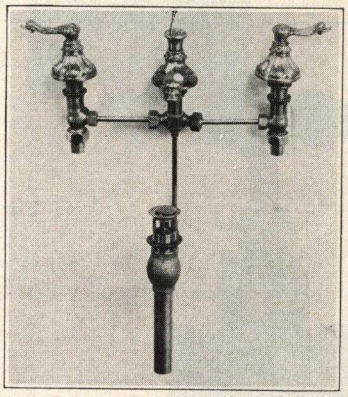
Manufacturers of

Bath and Shower Fixtures

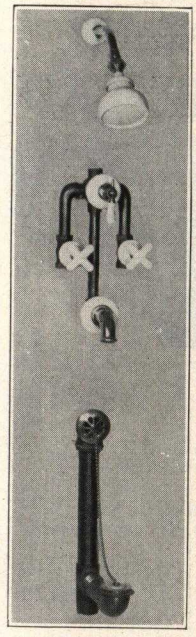
Individual design fixtures in Nickel, Chrome and Gold plate. Special match colors furnished.

All of our goods can also be furnished made of our **ARGENTO** Nickel Silver Metal. Estimates furnished on request.

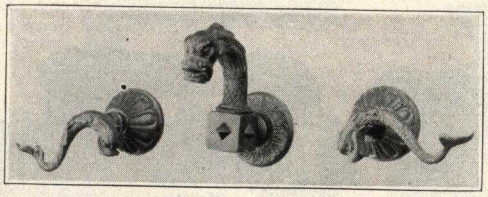
Glass Doors and Shower Enclosures made to order.



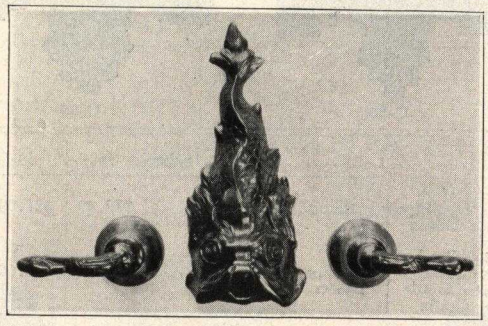
GARICO Basin Fixture



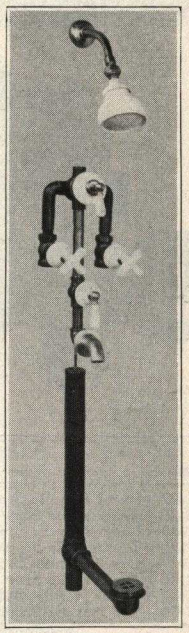
A-62a DIVERTO
Bath and Shower
Fixture



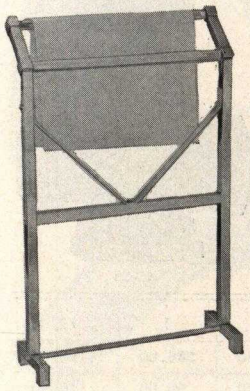
GRANADA Tub Filler



MARIANNA Tub Filler



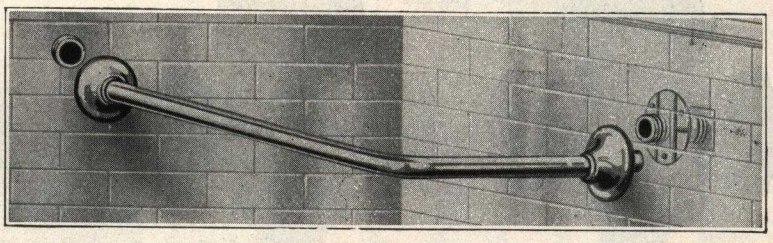
A-64a DIVERTO
Bath and Shower
Fixture



Lehnert Towel Stand

A sturdy and handsomely finished stand of great utility.

STABILITY Curtain Bar



The Lehnert & Company Curtain Bar and STABILITY Flange

Install flange on rough wall and slip bar in place after wall is finished. Patented

KITSON COMPANY PHILADELPHIA, PA.

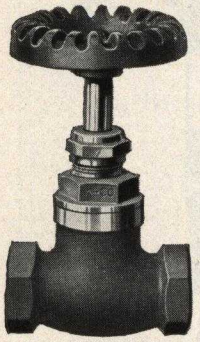
Westmoreland and Stokley Streets

Representatives
Atlanta, Ga., A. H. Deveney & Co.
First National Bank Building
Brookline, Mass., J. F. Cassidy
8 Alton Place

K-CO
Trade Mark

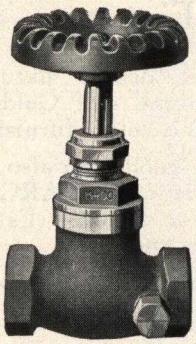
Representatives
Baltimore, Md., George C. Bender
831 Greenmount Avenue
San Francisco, Cal., Wm. P. Horn Co.
58 Federal Street

Compression Stops and Stops and Waste



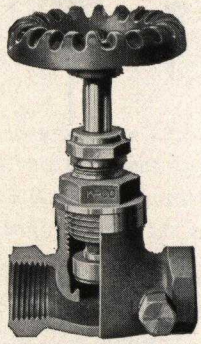
C-1—"Stokley" Compression Stop

Furnished in ½, ¾ and 1-inch Sizes



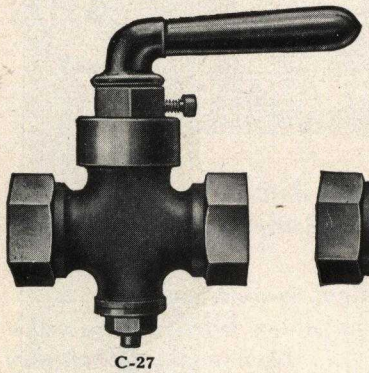
C-2—"Stokley" Compression Stop and Waste

Globe Valve Construction

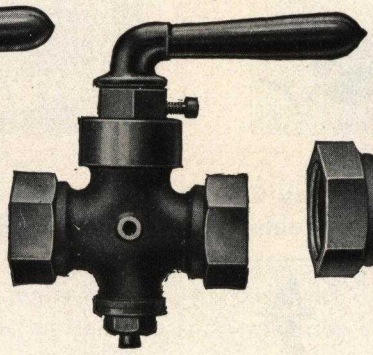


C-2—"Stokley" Compression Stop and Waste Sectional View

High Grade Flatway—Lever or Tee Handle Cap Stop and Stop and Waste Cocks

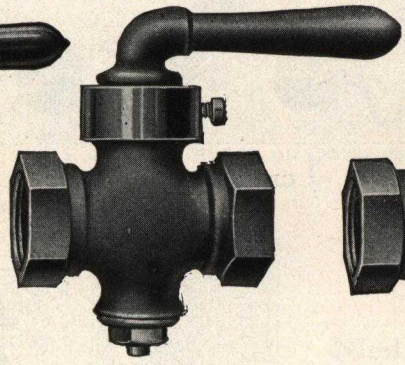


C-27

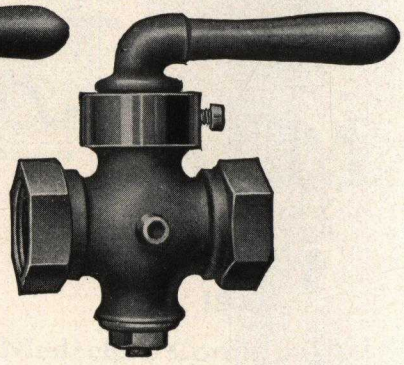


C-29

Extra Grade Flatway—Lever or Tee Handle Cap Stop and Stop and Waste Cocks



C-35

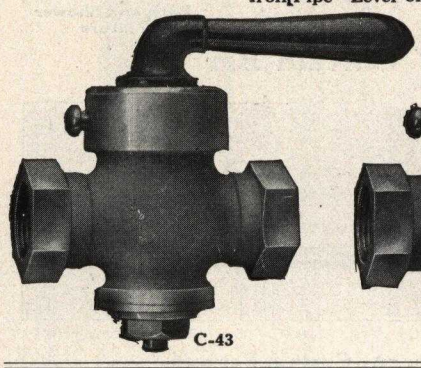


C-37

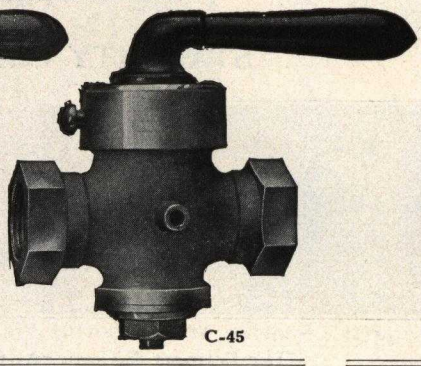
Size.....Inches	⅜	½	⅝	¾	1	1¼	1½	2
C-27—Lever Handle Stop—High Grade C-28—Tee Handle Stop—High Grade C-35—Lever Handle Stop—Extra Grade C-36—Tee Handle Stop—Extra Grade — For Iron Pipe Dozen	$20.40	$21.00	$29.40	$36.00	$52.80	$89.40	$149.40	$258.00
C-29—Lever Handle Stop and Waste—High Grade C-30—Tee Handle Stop and Waste—High Grade C-37—Lever Handle Stop and Waste—Extra Grade C-38—Tee Handle Stop and Waste—Extra Grade — For Iron Pipe Dozen	21.00	21.60	30.00	36.60	54.00	91.20	152.40	264.00

High Grade Roundway—Cap Stop and Stop and Waste Cocks

Iron Pipe—Lever or Tee Handle



C-43

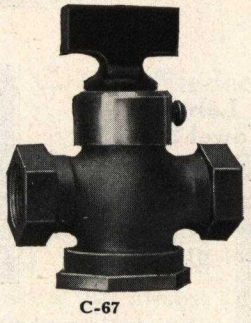


C-45

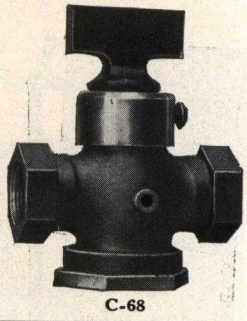
Size.....Inches	½	⅝	¾	1	1¼
C-43.....Doz.	$26.40	$36.00	$46.20	$73.80	$120.60
C-45.....Doz.	27.00	36.60	46.80	75.00	122.40

Inverted Roundway—Cap or Socket Head, Stop and Stop and Waste Cocks

Iron Pipe—Tee Handle



C-67

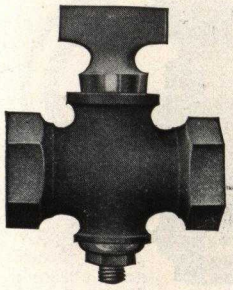


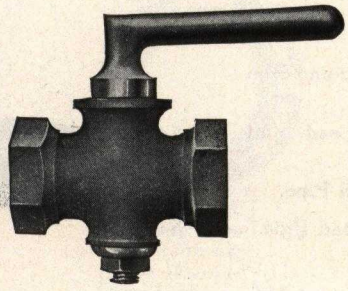
C-68

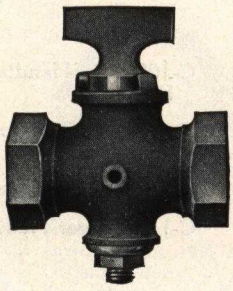
Size.....Inches	½	⅝	¾	1	1¼
C-67.....Doz.	$35.40	$45.60	$58.80	$88.80	$144.60
C-68.....Doz.	36.00	46.20	59.40	90.00	146.40

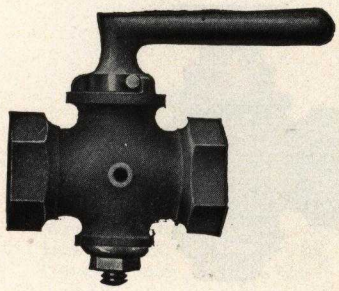
Rough—Flatway

Solid Handle—Tee and Lever Stops and Stop and Waste Cocks


C-73


C-74


C-75

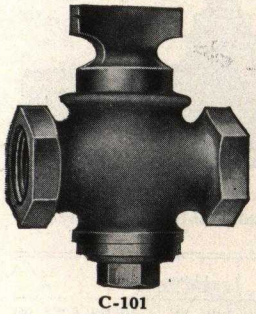

C-76

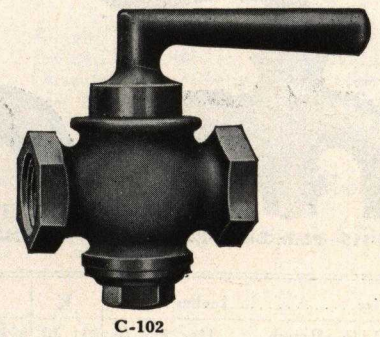
Size—Inches	¼	⅜	½	⅝	¾	1	1¼	1½	2
C-73—Tee Handle Stop C-74—Lever Handle Stop } I. P., Rough, Doz.	$19.80	$20.40	$21.00	$29.40	$36.00	$52.80	$89.40	$149.40	$258.00
C-75—Tee Handle Stop and Waste C-76—Lever Handle Stop and Waste } I. P., Rough, Doz.	20.40	21.00	21.60	30.00	36.60	54.00	91.20	152.40	264.00

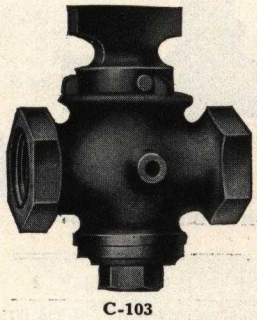
Made for Iron Pipe, Lead and Iron, and Lead and Lead.

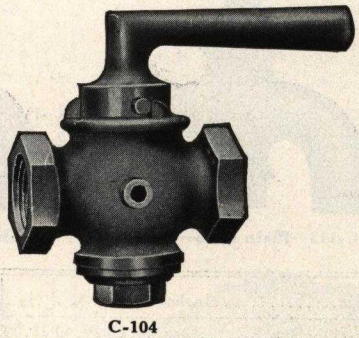
Rough—Roundway

Solid Handle—Tee and Lever Stops and Stop and Waste Cocks


C-101


C-102

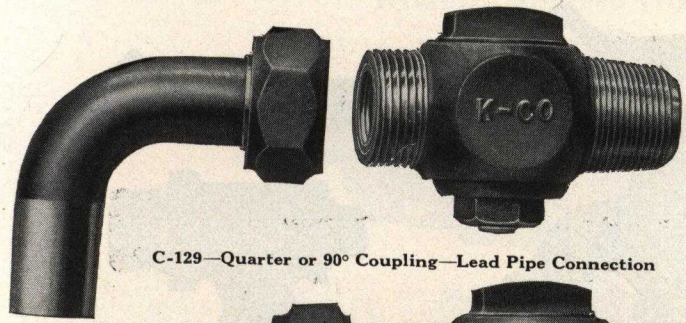

C-103


C-104

Iron Pipe

Size—Inches	½	⅝	¾	1	1¼	1½	2
C-101—Tee Handle Stop C-102—Lever Handle Stop } Rough, Doz.	$26.40	$36.00	$46.20	$73.80	$120.60	$197.40	$342.00
C-103—Tee Handle Stop and Waste C-104—Lever Handle Stop and Waste } Rough, Doz.	27.00	36.60	46.80	75.00	122.40	200.40	348.00

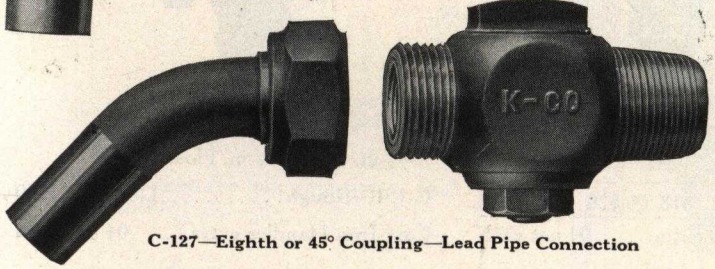
Corporation Stops



C-129—Quarter or 90° Coupling—Lead Pipe Connection



C-130—For Copper Tube Connection

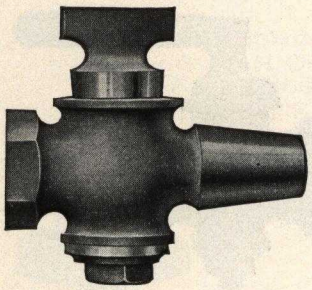


C-127—Eighth or 45° Coupling—Lead Pipe Connection

List Price Per Dozen

Size—Inches	⅝	¾	1	1¼	1½	2
C-127—45° Coup. C-129—90° Coup. C-130—Cop'r Con.	$ 27.00	$ 34.20	$ 54.00	$ 120.00	$ 192.00	$ 318.00
C-127—Less Coup. C-129—Less Coup. C-130—Less Coup.	23.40	30.00	48.00	111.00	180.00	300.00

Rough—Roundway Solid Handle Tee Stops



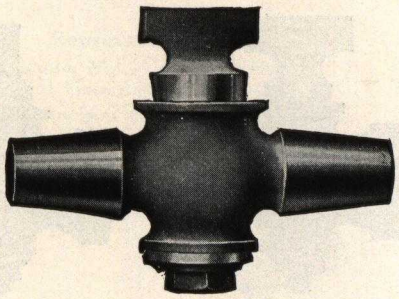
C-105

C-105—Tee Handle—Lead and Iron Pipe.

C-106—Lever Handle—Lead and Iron Pipe.

C-109—Tee Handle—Lead Pipe.

C-110—Lever Handle—Lead Pipe.

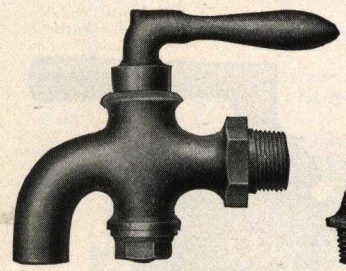


C-109

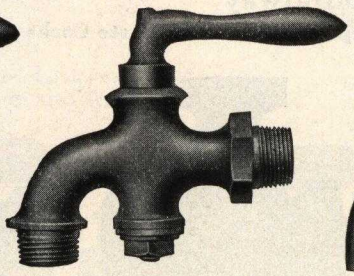
Size—Inches	½	⅝	¾	1	1¼	1½	2
C-105—Tee Handle Stop C-109—Tee Handle Stop } Doz	$28.80	$39.60	$51.00	$81.00	$131.40	$215.40	$372.00

C-106 and C-110 take above List Prices.

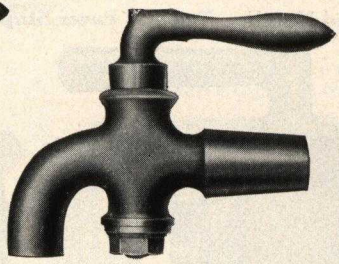
Rough, Finished and Nickel Plated Ground Key Bibbs



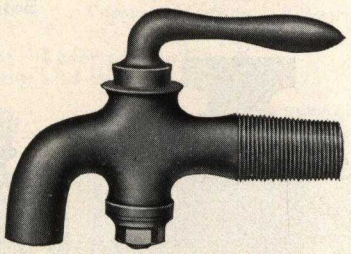
C-113—Plain Bibb—Iron Pipe



C-114—Hose Bibb—Iron Pipe



C-115—Plain Bibb—Lead Pipe

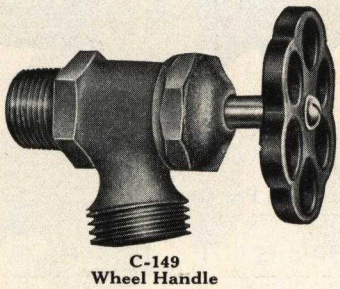


C-117—Plain Bibb—Wood Thread

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2
C-113—Rough.....Doz.	19.80	20.40	21.00	29.40	52.80	89.40	149.40	258.00
Finished....Doz.	24.60	25.20	25.80	35.40	64.80	107.40	179.40	300.00
Nickel Pltd..Doz.	29.40	30.00	30.60	41.40	76.80	125.40	209.40	342.00
C-114—Rough.....Doz.	.....	.....	24.00	32.40	60.00	100.20	164.40	280.20
Finished....Doz.	.....	.....	28.80	38.40	72.00	118.20	194.40	322.20
Nickel Pltd..Doz.	.....	.....	33.60	44.40	84.00	136.20	224.40	364.20

Size.....Inches	½	¾	1	1¼	1½	2
C-115—Rough.....Doz.	$22.20	$31.20	$56.40	$ 94.80	$158.40	$273.00
Finished....Doz.	27.00	37.20	68.40	112.80	188.40	315.00
Nickel Pltd..Doz.	31.80	43.20	80.40	130.80	218.40	357.00
C-117—Rough.....Doz.	25.80	34.80	63.60	109.20	179.40	306.00
Finished....Doz.	30.60	40.80	75.60	127.20	209.40	348.00
Nickel Pltd..Doz.	35.40	46.80	87.60	145.20	239.40	390.00

Boiler Draw-Off Cocks

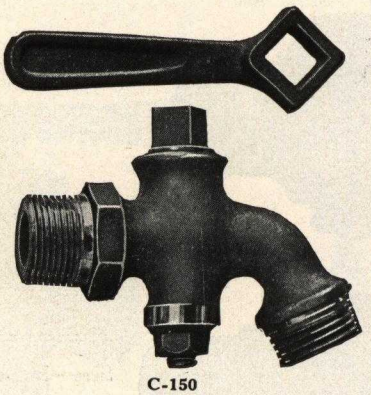


C-149
Wheel Handle

Rough Nickel Plated

½-in. I. P. x ¾-in. Hose...Dozen $17.40

¾-in. I. P. x ¾-in. Hose...Dozen 22.80



C-150

Size—Inches.....	½	⅝	¾
C-150—Rough.....	$18.00	$26.40	$33.00

Cast Iron Handles extra... .04 net each



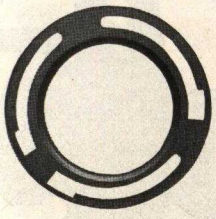
C-151

¾-in. I. P. x ¾-in. Hose Outlet.

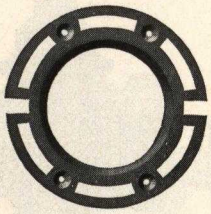
C-151—Rough.....Dozen $13.80

Cast Iron Handles extra... .04 net each

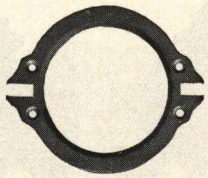
Closet Floor Flanges



C-133 (Renton)
Weight, 14 oz.
Inside Diam., 4⅜ in.
Outside Diam., 6¾ in.
List Price, Each, $1.00.



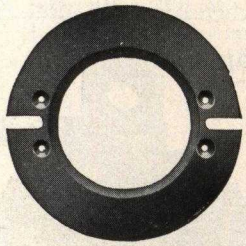
C-134
For 3-inch Lead Pipe.
Weight, 16 oz.
Inside Diam., 3⅝ in.
Outside Diam., 6⅜ in.
Bolt slot, 4⅞ in. C. to C.—6¼ in. C. to C.
List Price, Each, $1.00.



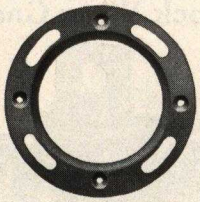
C-135
Weight, 8 oz.
Inside Diam., 4¼ in.
Outside Diam., 5½ in.
List Price, Each, $0.65.



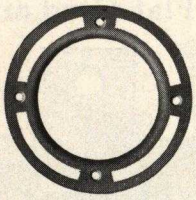
C-136
Weight, 31 oz.
Inside Diam. at Top, 5⅛ in
Outside Diam., at Top, 6⅝ in.
Inside Diam., at Bottom, 4½ in.
Total Height, 2½ in.
List Price, Each, $1.75



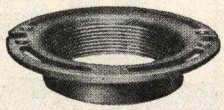
C-137
Weight, 22 oz.
Inside Diam., 4½ in.
Outside Diam., 8 in.
List Price, Each, $1.50.



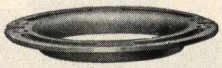
C-138
Weight, 14 oz.
Inside Diam., 4⅜ in.
Outside Diam., 6⅝ in.
List Price, Each, $1.00.



C-139
Weight, 8½ oz.
Inside Diam., 4⅜ in.
Outside Diam., 6¾ in.
List Price, Each, $0.75.



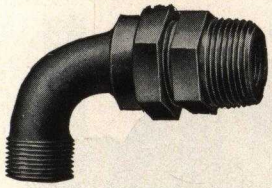
C-140
Weight, 31 oz.
Inside Diam., 4¼ in.
Outside Diam., 7 in.
Height, 1⅜ in.
Tapped 4-in. I. P. S.
List Price, Each, $2.00.



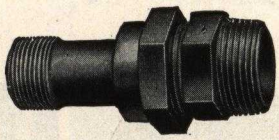
C-141
Weight, 17½ oz.
Inside Diam., 4⅜ in.
Outside Diam., 7 in.
Height, 11/16 in.
List Price, Each, $1.00

Boiler Couplings

Ground Ball Joint—Red Brass **C-145—In Sets of 4 Pieces**
Consisting of 2 Bends, Open Spud; 1 Bend, Water Tube Spud; 1 Straight Open Spud



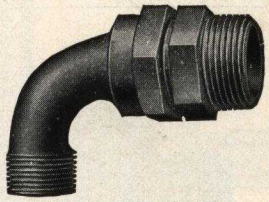
C-142
Bend—Water Tube Spud Tapped for ½-inch I. P. S. Water Tube



C-143
Straight—Open Spud



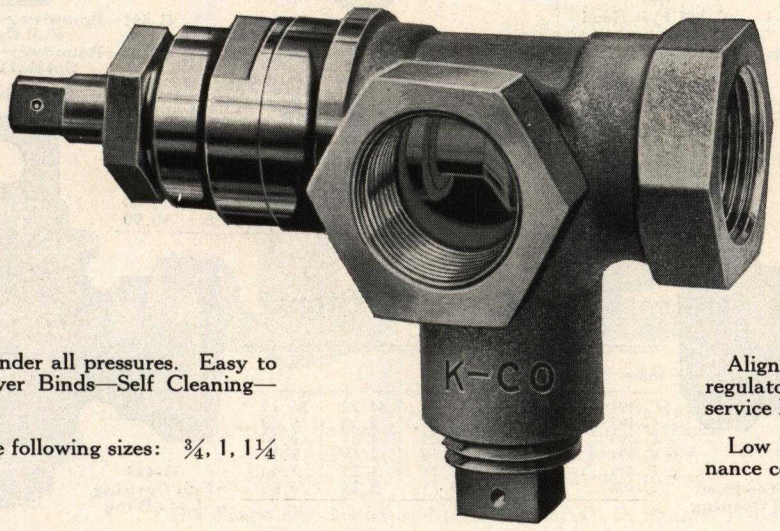
C-144
Bend—Open Spud



C-144
Bend—Open Spud

C-145—1-In. I. P. Spud x ¾-In. I. P. End—Sets each $6.95 **C-145A—¾-In. I. P. Spud x ¾-In. I. P. End—Sets each $6.95**

Kitson Patented High Pressure Gas Valve



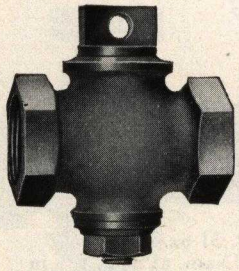
Gas tight under all pressures. Easy to turn off—Never Binds—Self Cleaning—Cannot Clog.

Made in the following sizes: ¾, 1, 1¼ inches.

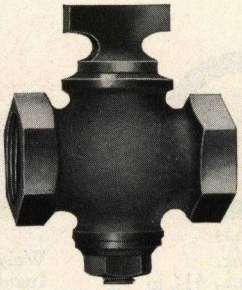
Aligns easily with service and regulator lines, thereby reducing service line breaks.

Low in installation and maintenance cost.

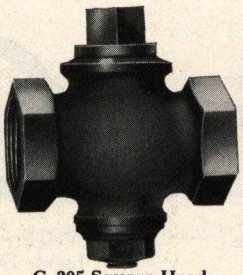
Standard Flatway Gas Stops



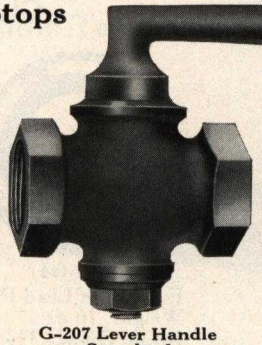
G-201 Flat Head Standard



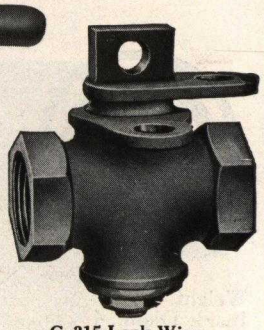
G-203 Tee Head Standard



G-205 Square Head Standard



G-207 Lever Handle Standard

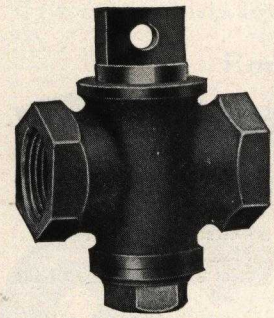


G-215 Lock Wing Standard

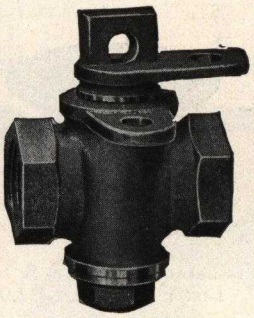
Size.....Inches	⅜	½	¾	1	1¼	1½	2
G-201, 203, 205, 207, Less Check..	$1.00	$1.10	$1.30	$2.10	$3.25	$4.60	$8.00
G-215—Lock Wing.....	.....	1.40	1.60	2.50	3.85	5.35	9.00

Size.....Inches	⅜	½	¾	1	1¼	1½	2
G-202, 204, 206, 208, With Check..	$1.15	$1.30	$1.55	$2.40	$3.70	$5.10	$8.75
For Double Nut Bottom—Add...	.15	.15	.20	.25	.35	.45	.60

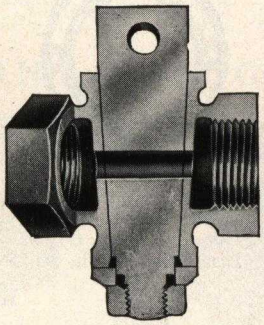
Extra and Special Pattern Flat Head and Lock Wing Gas Stops



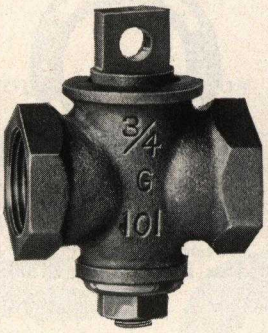
G-301 Flat Head Extra



G-315 Lock Wing Extra



G-317 Flat Head High Pressure



G-101 Flat Head "Special"

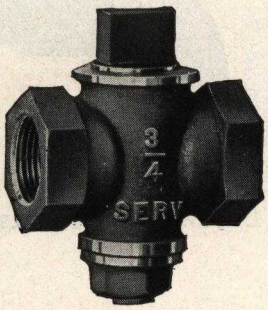


G-115 Lock Wing "Special"

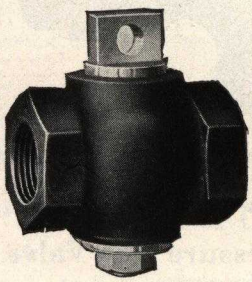
Size.....Inches	⅜	½	¾	1	1¼	1½	2
G-301.....	$1.20	$1.30	$1.80	$3.00	$4.50	$6.50	$11.20
G-315—Lock Wing.....	.....	1.60	2.10	3.40	5.10	7.25	12.20

Size.....Inches	¾	1	1¼	1½	2
G-317—High Pressure.....	$2.80	$4.60	$6.75	.....	.....
G-401—Heavy Service.....	2.50	4.20	6.15	$9.25	$16.60

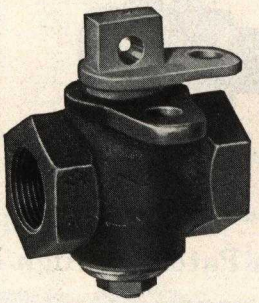
Heavy Pattern and Iron Body Brass Plug Gas Stops



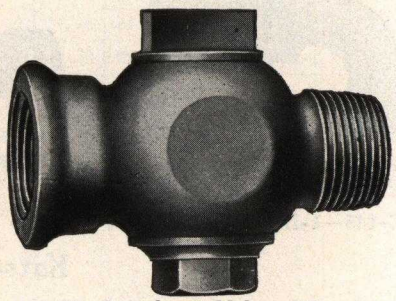
G-401 Flat Head Heavy Service



G-501 Flat Head Iron Body Brass Plug



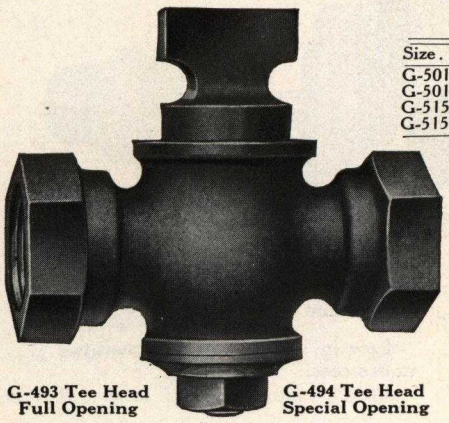
G-515 Lock Wing Iron Body Brass Plug



G-491—Roundway—Male and Female Full Opening
G-492—Roundway—Male and Female Special Opening

Iron Body Gas Stops

Size.....Inches	¾	1	1¼	1½	2
G-501—Black Iron.....Each	$1.30	$2.30	$4.00	$5.60	$10.00
G-501—Galvanized.....Each	1.50	2.60	4.50	6.10	10.50
G-515—Black Iron.....Each	1.60	2.50	4.40	6.00	10.40
G-515—Galvanized.....Each	1.80	2.80	4.90	6.50	10.90

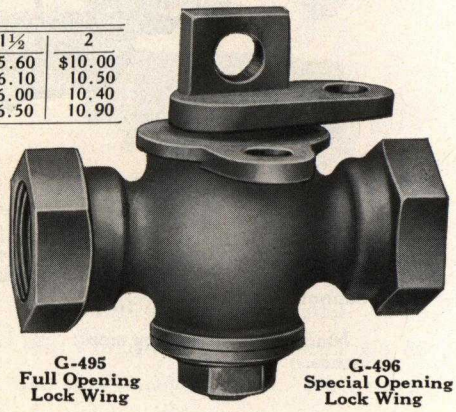


G-493 Tee Head Full Opening

G-494 Tee Head Special Opening

Extra Heavy Gas Stops

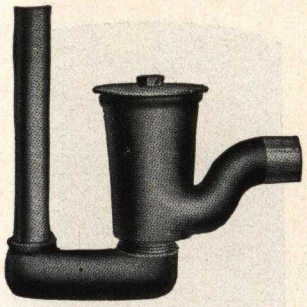
Size.....Inches	¾	1	1¼
G-491.....	$2.50	$4.20	$6.15
G-492.....	2.75	4.50	6.60
G-493.....	3.05	4.85	7.30
G-494.....	3.30	5.15	7.75
G-495.....	3.35	5.25	7.90
G-496.....	3.75	5.75	8.60



G-495 Full Opening Lock Wing

G-496 Special Opening Lock Wing

Cast Brass Bath Traps



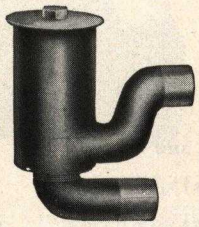
C-500

Bennor Pattern
Philadelphia Regulation
Lead Pipe Outlet
8"x1⅜" O. D. Tube Inlet.
1¼, 1½ and 2-inch sizes.



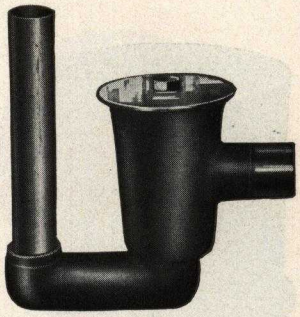
C-501

Bennor Pattern
Philadelphia Regulation
Lead Pipe
1¼, 1½ and 2-inch sizes.



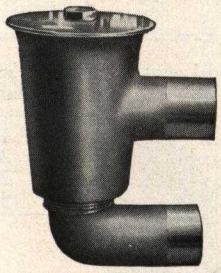
C-502

Philadelphia Regulation
1¼ and 1½-inch sizes



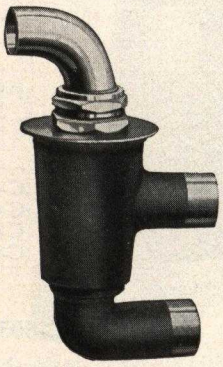
C-503

Bennor Pattern
Lead Pipe Outlet
8"x1⅜" O. D. Tube Inlet
1¼, 1½ and 2-inch sizes.



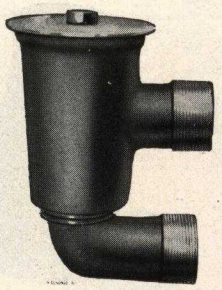
C-504

Bennor Pattern
Lead Pipe
1¼, 1½ and 2-inch sizes.



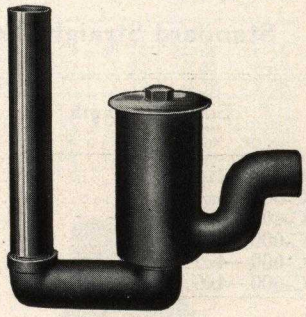
C-505

Vented Cap
Bennor Pattern
Lead Pipe
1¼ and 1½-inch sizes



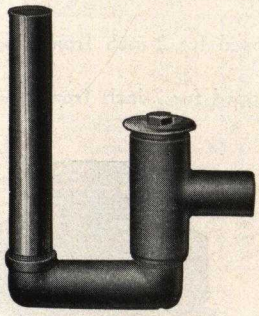
C-506

Bennor Pattern
Iron Pipe
Male or Female
1¼, 1½ and 2-inch sizes



C-508

Philadelphia Regulation
Lead Pipe Outlet
8"x1⅜" O. D. Tube Inlet.
1¼ and 1½-inch sizes.



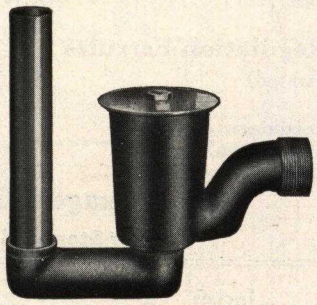
C-509

Pony Pattern
Lead Pipe Outlet
8"x1⅜" O. D. Tube Inlet.
1¼-inch size only.



C-510

Bennor Pattern
Philadelphia Regulation
I. P. Male or Female.
1¼, 1½ and 2-inch sizes.



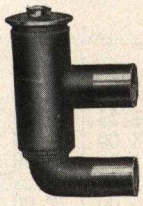
C-511

Bennor Pattern
Philadelphia Regulation
I. P. Male or Female Outlet.
8"x1⅜" O. D. Tube Inlet.
1¼, 1½ and 2-inch sizes.



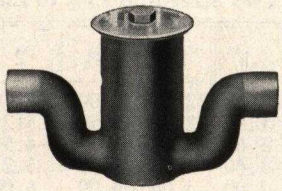
C-512

Bennor Pattern
I. P. Male or Female Outlet.
8"x1⅜" O. D. Tube Inlet.
1¼, 1½ and 2-inch sizes.



C-507

Pony Pattern
Lead Pipe
1¼-inch size only.



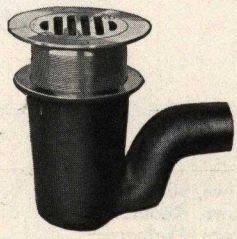
C-514

Running Pattern
Lead Pipe
1¼-inch size only.



C-515

Philadelphia Regulation
Pony Pattern
Lead Pipe
1¼-inch size only.



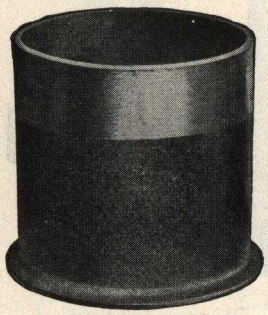
C-516

Shower Trap
Removable Strainer
Lead Pipe
Male or Female I. P.
1½ and 2-inch.

Tube Traps also furnished with 8"x1½" O. D. Rough Tubes

Red Brass Ferrules

Standard Tapered Ferrule



C-600

C-601

Size and Length:

2x1¼x4 inches.

2x1½x4 inches.



C-601

C-601

Weight:

12½ ounces.

13 ounces.



C-608

Standard Straight Ferrule

Size and Length Inches	Weight Ounces
C-600—2x4	12
C-600—3x4	24
C-600—4x4	28
C-600—4x4½	32
C-600—4x5	40
C-600—4x6	52



C-606



C-607

Tapered Ferrules Extra Heavy

Size and Length Inches	Weight Ounces
C-606—1½x2¼x4¾	18
C-607—2 x2¼x4¾	20
C-608—3 x3¼x4¾	25
C-608—4 x4¼x4¾	34

C-602—Eighth Bend Ferrule

(Not Illustrated)

4x7½ inches—Standard Pattern....62 ounces
2x5 inches—For Extra Heavy Pipe....16 ounces
4x7½ inches—For Extra Heavy Pipe....64 ounces

C-603, C-604—State Regulation Ferrules

(Not Illustrated)

2⅛x2⅜x4 inches—16 ounces.
4⅛x4⅜x5 inches—40 ounces (Reading).
4⅛x4⅜x5 inches—46 ounces (Wilmington).

C-605—"Y" Ferrule

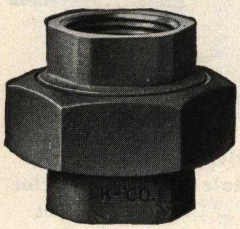
(Not Illustrated)

4x8¾ inches—With two Inlets tapped for 1½-inch Iron Pipe—86 ounces.

4x8¾ inches—With one Inlet tapped for 1½-inch Iron Pipe—89 ounces.

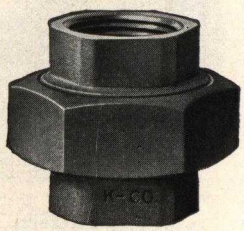
4x9½ inches—With one Inlet tapped for 2-inch Iron Pipe—96 ounces.

4x9½ inches—With two Inlets tapped for 2-inch Iron Pipe—125 ounces.



Hexagon Brass Unions

For Standard Iron Pipe Sizes



Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2
Rough	$0.50	$0.65	$0.85	$1.15	$1.60	$2.25	$2.70	$4.00
Finished	.60	.85	1.05	1.40	1.90	2.75	3.25	5.00
Nickel Plated	.72	1.02	1.26	1.68	2.28	3.30	3.90	6.00

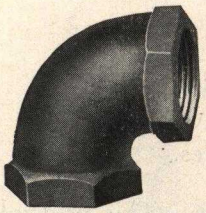
Extra Heavy Brass Fittings (Not Illustrated)

Cast Iron Pattern—Rough—For Iron Pipe
For Steam Working Pressure Up to 250 Pounds
For Fittings Reducing More Than Two Sizes Add 25% to List Prices

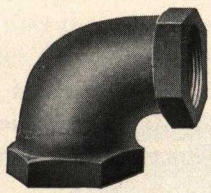
Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4
Elbows, 90-degree	$0.33	$0.45	$0.65	$1.00	$1.50	$2.25	$3.00	$ 4.50	$ 8.00	$11.25	$16.00	$22.00
Elbows, Reducing	.....	.55	.75	1.20	1.80	2.60	3.50	5.25	9.00	13.00	19.00	25.00
Elbows, 45-degree	.45	.55	.75	1.10	1.65	2.50	3.25	4.50	8.00	11.25	16.00	22.00
Elbows, Right and Left	.40	.55	.75	1.20	1.80	2.60	3.50	5.25	9.00	13.00	.....	.....
Tees	.45	.60	.90	1.35	2.00	3.00	4.00	6.00	10.75	15.00	22.00	30.00
Tees, Reducing	.....	.70	1.05	1.55	2.30	3.50	4.50	6.75	12.00	17.00	25.00	35.00
Crosses	.70	.90	1.30	2.00	3.00	4.50	6.00	9.00	16.00	22.50	28.00	37.00
Crosses, Reducing	.....	1.10	1.50	2.40	3.60	5.25	7.00	10.50	18.00	26.00	32.00	42.00
Couplings	.40	.50	.70	1.10	1.65	2.25	3.00	4.50	7.00	10.00	13.00	17.00
Return Bends, Close	.....	.....	1.65	2.50	3.50	5.00	7.00	10.00	16.00	22.00	30.00	40.00
Return Bends, Open	.....	.....	1.80	2.75	4.00	5.50	8.00	11.00	18.00	25.00	35.00	45.00
Wyes	.90	1.10	1.50	2.50	3.50	5.50	7.25	11.00	19.00	27.00	33.00	45.00

Hexagon End Brass Fittings

For Standard Iron Pipe Sizes



90° Elbow



Reducing Elbow

90° Elbows

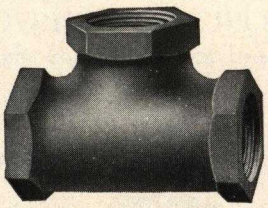
Size.....Inches	⅛	¼	⅜	½	¾	1	1¼
Rough.....Each	$0.12	$0.15	$0.20	$0.28	$0.40	$0.63	$0.90
Finished.....Each	.30	.35	.45	.56	.75	1.10	1.55
Nickel Plated.Each	.36	.42	.53	.65	.87	1.25	1.75

Size.....Inches	1½	2	2½	3	3½	4
Rough.....Each	$1.20	$2.00	$3.50	$6.00	$8.00	$10.00
Finished.....Each	2.00	3.00	5.50	9.00	14.00	17.50
Nickel Plated.....Each	2.25	3.35	6.15	10.00	16.00	20.00

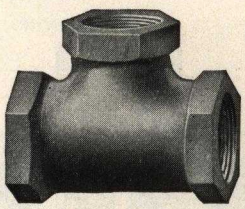
Reducing Elbows

Size.....Inches	¼	⅜	½	¾	1	1¼
Rough.....Each	$0.19	$0.25	$0.35	$0.50	$0.80	$1.10
Finished.....Each	.44	.55	.70	.95	1.40	1.90
Nickel Plated.....Each	.52	.65	.82	1.10	1.60	2.15

Size.....Inches	1½	2	2½	3	3½	4
Rough.....Each	$1.50	$2.50	$4.25	$7.50	$10.00	$12.50
Finished.....Each	2.50	3.75	6.75	11.25	17.50	22.00
Nickel Plated.....Each	2.85	4.15	7.60	12.50	20.00	25.00



Tee



Reducing Tee

Tees

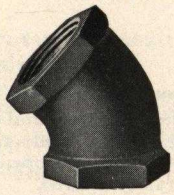
Size.....Inches	⅛	¼	⅜	½	¾	1	1¼
Rough.....Each	$0.17	$0.21	$0.28	$0.40	$0.55	$0.85	$1.25
Finished.....Each	.42	.49	.63	.80	1.05	1.50	2.15
Nickel Plated.Each	.50	.58	.75	.93	1.22	1.70	2.45

Size.....Inches	1½	2	2½	3	3½	4
Rough.....Each	$1.70	$2.80	$5.00	$8.50	$11.00	$14.00
Finished.....Each	2.80	4.20	7.75	12.75	19.50	24.50
Nickel Plated.....Each	3.15	4.65	8.65	14.00	22.30	28.00

Reducing Tees

Size.....Inches	¼	⅜	½	¾	1	1¼
Rough.....Each	$0.25	$0.35	$0.50	$0.70	$1.05	$1.55
Finished.....Each	.60	.77	1.00	1.30	1.85	2.65
Nickel Plated.....Each	.72	.90	1.15	1.50	2.10	3.00

Size.....Inches	1½	2	2½	3	3½	4
Rough.....Each	$2.10	$3.50	$6.25	$10.50	$14.00	$17.50
Finished.....Each	3.50	5.25	9.75	15.80	24.50	30.50
Nickel Plated.....Each	3.95	5.85	10.90	17.50	28.00	35.00



45° Elbow



Street or Service Elbow

45° Elbows

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼
Rough.....Each	$0.16	$0.20	$0.25	$0.31	$0.40	$0.63	$0.90
Finished.....Each	.38	.45	.55	.66	.85	1.23	1.70
Nickel Plated.Each	.45	.53	.65	.78	1.00	1.43	1.95

Size.....Inches	1½	2	2½	3	3½	4
Rough.....Each	$1.20	$2.00	$3.50	$6.00	$8.00	$10.00
Finished.....Each	2.20	3.25	6.00	9.75	15.50	19.50
Nickel Plated.....Each	2.55	3.65	6.85	11.00	18.00	22.50

Street or Service Elbows

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼
Rough.....Each	$0.25	$0.27	$0.33	$0.48	$0.63	$0.85	$1.50
Finished.....Each	.47	.52	.63	.83	1.08	1.45	2.30
Nickel Plated.Each	.54	.60	.73	.95	1.23	1.65	2.55

Size.....Inches	1½	2	2½	3	3½	4
Rough.....Each	$2.00	$3.25	$6.00	$10.00	.....	.....
Finished.....Each	3.00	4.50	8.50	13.75	.....	.....
Nickel Plated.....Each	3.35	4.90	9.35	15.00	.....	.....



Socket or Coupling



Reducing Socket or Coupling

Sockets or Couplings

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼
Rough.....Each	$0.10	$0.13	$0.17	$0.25	$0.37	$0.55	$0.80
Finished.....Each	.24	.28	.36	.46	.63	.90	1.30
Nickel Plated.Each	.29	.33	.42	.53	.72	1.00	1.45

Size.....Inches	1½	2	2½	3	3½	4
Rough.....Each	$1.00	$1.60	$2.50	$3.50	$5.25	$7.00
Finished.....Each	1.60	2.35	4.00	5.75	9.75	12.50
Nickel Plated.....Each	1.80	2.60	4.50	6.50	11.25	14.25

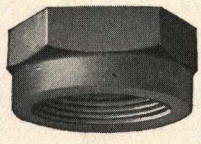
Reducing Sockets or Couplings

Size.....Inches	¼	⅜	½	¾	1	1¼
Rough.....Each	$0.15	$0.20	$0.28	$0.40	$0.60	$0.90
Finished.....Each	.35	.45	.56	.75	1.05	1.55
Nickel Plated.....Each	.42	.53	.65	.87	1.20	1.75

Size.....Inches	1½	2	2½	3	3½	4
Rough.....Each	$1.10	$1.75	$2.75	$4.00	$6.00	$8.00
Finished.....Each	1.90	2.75	4.75	7.00	12.00	15.50
Nickel Plated.....Each	2.15	3.10	5.40	8.00	14.00	18.00



Plug



Hex Cap

Plugs

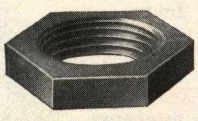
Size.....Inches	⅛	¼	⅜	½	¾	1	1¼
Rough.....Each	$0.08	$0.10	$0.12	$0.15	$0.20	$0.30	$0.45
Finished.....Each	.23	.30	.37	.43	.55	.75	1.00
Nickel Plated.Each	.28	.37	.45	.52	.67	.90	1.20

Size.....Inches	1½	2	2½	3	3½	4
Rough.....Each	$0.60	$0.95	$1.50	$2.25	$3.75	$5.00
Finished.....Each	1.30	1.95	3.00	4.25	6.25	8.00
Nickel Plated.....Each	1.55	2.30	3.50	4.90	7.10	9.00

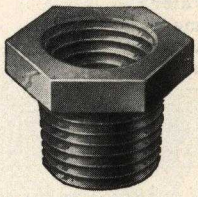
Hex Caps

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼
Rough.....Each	$0.10	$0.13	$0.16	$0.20	$0.30	$0.42	$0.60
Finished.....Each	.20	.25	.31	.40	.55	.77	1.10
Nickel Plated.Each	.23	.29	.36	.47	.63	.89	1.25

Size.....Inches	1½	2	2½	3	3½	4
Rough.....Each	$0.80	$1.25	$2.50	$3.50	$5.50	$7.00
Finished.....Each	1.50	2.25	4.00	5.50	8.00	10.00
Nickel Plated.....Each	1.75	2.60	4.50	6.15	8.85	11.00



Locknut



Bushing

Locknuts

Size.....Inches	⅛	¼	⅜	½	¾	1	1¼
Rough.....Each	$0.10	$0.10	$0.12	$0.15	$0.20	$0.28	$0.40
Finished.....Each	.24	.25	.32	.40	.50	.65	.85
Nickel Plated.Each	.29	.30	.39	.48	.60	.77	1.00

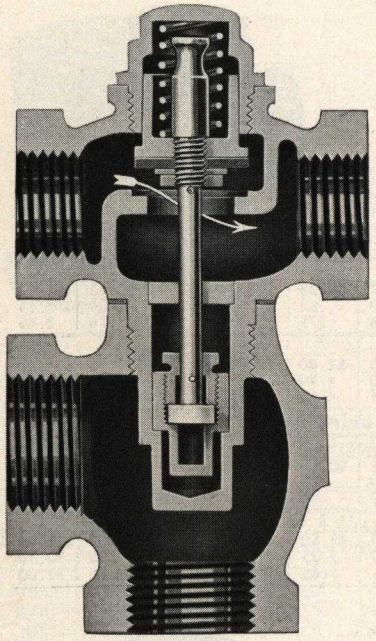
Size.....Inches	1½	2	2½	3	3½	4
Rough.....Each	$0.55	$0.80	$1.75	$2.75	$4.00	$5.00
Finished.....Each	1.10	1.60	3.25	4.75	6.50	8.00
Nickel Plated.....Each	1.30	1.85	3.75	5.40	7.35	9.00

Bushings

Size.....Inches	¼	⅜	½	¾	1	1¼
Rough.....Each	$0.10	$0.12	$0.15	$0.22	$0.35	$0.50
Finished.....Each	.22	.27	.35	.47	.70	1.00
Nickel Plated.....Each	.26	.32	.42	.55	.82	1.15

Size.....Inches	1½	2	2½	3	3½	4
Rough.....Each	$0.70	$1.00	$1.50	$2.50	$3.75	$5.00
Finished.....Each	1.40	2.00	3.00	4.50	6.25	8.00
Nickel Plated.....Each	1.65	2.35	3.50	5.15	7.10	9.00

Lovekin Emergency Gas Shut-off Valves



Type UL

For the Positive Protection of Domestic Gas Water Heaters against Explosion and Other Damage Due to Uncontrolled Temperatures.

These valves embody the patented Lovekin principle. This principle is based on the use of a fuse similar to that used in an automatic sprinkler system. However, in the case of the Lovekin Valve, the fuse (a disc of fusible metal) is enclosed in a cartridge to protect it from contact with water or other elements which would change its operating point.

Should the water in the boiler approach a dangerous temperature, the fusible disc softens causing the valve on the gas supply to snap shut. The only servicing required is the installation of a new fusible disc.

Constructed of Kitson brass and designed on fundamental engineering principles. Applicable to all types of gas water heaters, whether automatically controlled or otherwise.

Universal Type

Elbow Type UL—Thruway Type UT

For attachment to cold water inlet on boilers not equipped with auxiliary openings.

Gas Connection Inches	Water Connection Inches	Elbow Type No.	Thruway Type No.
3/8	1/2	UL-12	UT-12
3/8	3/4	UL-13	UT-13
1/2	3/4	UL-23	UT-23
1/2	1	UL-24	UT-24

Immersion Type IHF

To be used in top of a hot water outlet fitting and extending into the tank.

Gas Connection Inches	Water Connection Inches	Type No.
3/8	1/2	IHF-12
1/2	1/2	IHF-22
3/4	1/2	IHF-32

Immersion Type IJC

For use on insulated tanks where side opening is provided. Takes 5/8" O. D. copper tube.

Gas Connection Inches	Water Connection Inches	Type No.
3/8	3/4	IJC-13
1/2	3/4	IJC-23

Immersion Type IJ

For insertion in top of insulated tank. Threaded opening in top of tank required.

Gas Connection Inches	Water Connection Inches	Type No.
3/8	3/4	IJ-13
1/2	3/4	IJ-23

Special Immersion Type IS

For use on light tanks. Recommended also for very light tanks where temperature of liquid must be kept from exceeding some pre-determined degree. Plain non-threaded opening only is necessary. Fits 15/16" hole. Use gaskets to prevent leaks.

Gas Connection Inches	Water Connection Inches	Type No.
3/8	15/16 hole	IS-1
1/2	15/16 hole	IS-2
3/4	15/16 hole	IS-3

Non-Immersion Type NI

For use on plumber's standard uninsulated tank. An extra threaded opening in top of tank required.

Gas Connection Inches	Water Connection Inches	Type No.
3/8	1/2	NI-12
1/2	1/2	NI-22

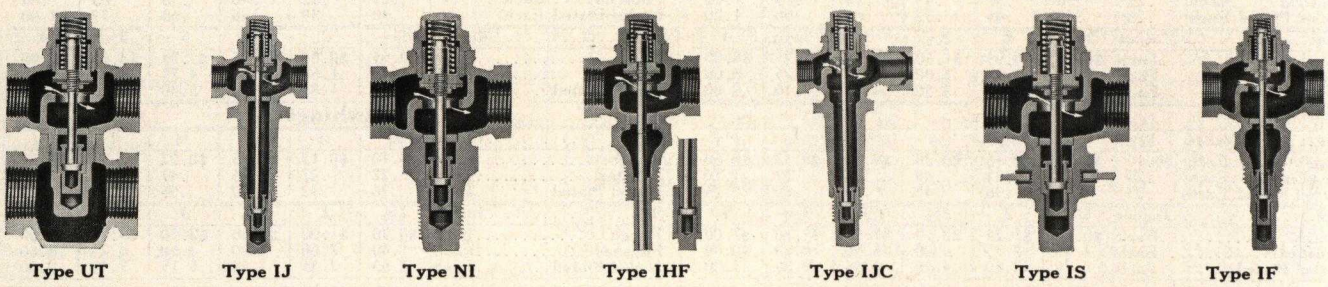
Immersion Type IF

For attachment into tank fittings or hot water flow line. Also used with large capacity water heating tanks.

Gas Connection Inches	Water Connection Inches	Type No.
1/2	3/4	IF-23
3/4	1	IF-34
1	1	IF-44
1 1/4	1 1/4	IF-55
1 1/2	1 1/4	IF-65

All these valves are for use on open systems. Where system is closed the LOVEKIN EXPANSION PRESSURE RELIEF VALVE (see next page) should be used in conjunction with the LOVEKIN EMERGENCY GAS SHUT-OFF VALVE.

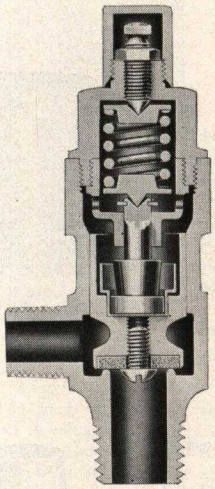
LOVEKIN VALVES are all protected by U. S. patents issued and pending.



Type UT Type IJ Type NI Type IHF Type IJC Type IS Type IF

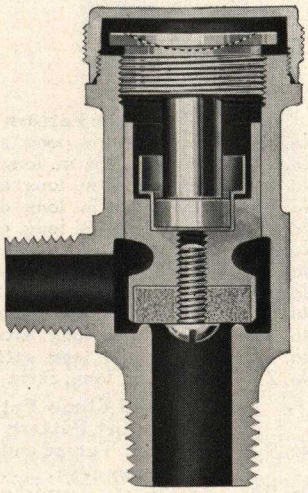
Lovekin Temperature and Pressure Relief Valves

For use in connection with domestic hot water tanks heated by coal or oil. These valves operate on the patented LOVEKIN PRINCIPLE of the enclosed fusible disc (see preceding page). Strongly constructed of brass.



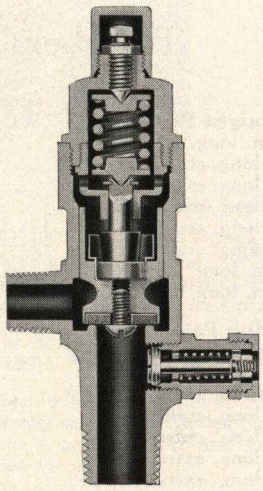
Temperature Pressure Relief Valve

For use on closed systems. Opens and closes automatically to care for relief of pressures due to water expansion. Fusible disc softens only when temperatures occur which are liable to generate steam.



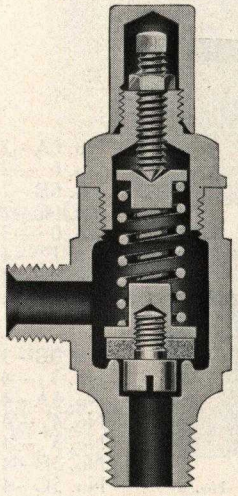
Temperature Relief Valve

For use on open systems only. Intended to afford relief from excessive temperatures only.



Temperature Pressure and Vacuum Relief Valve

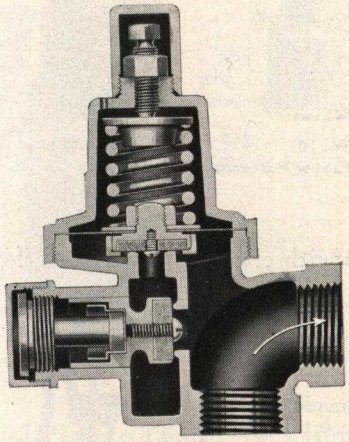
For use on copper tanks where it is necessary to provide against collapse of the tank due to formation of vacuum. Essentially the same as the Temperature-Pressure Relief Valve except that it is fitted with a vacuum relief valve. Set for 7 inches of vacuum unless otherwise requested.



Expansion Pressure Relief Valve

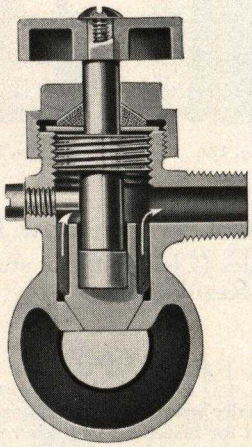
For use in connection with Emergency Gas Shut-Off Valve when used on a closed system.

Adjustable within a 50 to 200-lb. range.



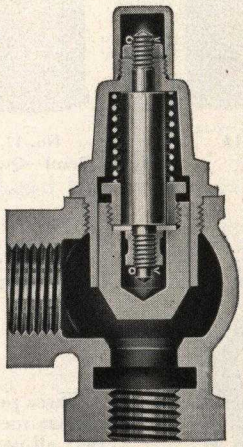
Diaphragm Temperature and Pressure Relief Valve

A temperature and pressure relief valve which combines the LOVEKIN PRINCIPLE of Temperature Control with the well-known advantages of a diaphragm-operated valve for pressure relief.



Water Meter Protection Valve

For the protection of water meters against damage from excessive water temperatures. The use of this valve makes unnecessary the dangerous check valve.



Fire Emergency Gas Shut-Off Valve

The State of Massachusetts by statute has required the use of an emergency shut-off valve to be applied to all gas meters, to automatically shut off the supply of gas in case of fire.

THE LEAVITT MACHINE COMPANY — ORANGE, MASS.

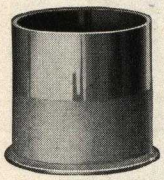
Representatives:

Cleveland, Ohio, John W. Stiles & Son, 700 The Prospect Fourth Bldg.

New York, N. Y., Henry Gleichman, 51 Madison Avenue.

Philadelphia, Pa., George H. Wobensmith, 1903 West Erie Avenue.

Plumbers' Brass Ferrules



No. 1
Straight Pattern



No. 6
Straight Pattern



No. 5
Hub Pattern

	Approx. Wt. Oz.
Straight Pattern	
No. 6A—2 x 3½ in. long, standard	10
No. 6 —2 x 4 in. long, standard	12
No. 6B—2 x 4 in. long, extra heavy	14
No. 6C—2 x 6 in. long, extra heavy	18
No. 0 —3 x 4 in. long, standard	18
No. 1 —4 x 4 in. long, standard	22
No. 1A—4 x 4½ in. long, standard	24
No. 1B—4 x 4½ in. long, extra heavy	40
Hub Pattern	
No. 0B—3 x 4½ in. long, extra heavy	22
No. 3 —4 x 4 in. long, standard	24
No. 5A—4 x 4½ in. long, extra heavy	28
No. 4 —4 x 5 in. long, standard	28
No. 5 —4 x 5 in. long, extra heavy	32
No. 5B—4 x 5 in. long, extra heavy	36
No. 5C—4 x 5 in. long, extra heavy	40
Eighth Bend	
No. 12 —2 in. for heavy pipe, hub pattern	22
No. 12A—2 in. for heavy pipe, taper pattern	32
No. 12B—2 in. for heavy pipe, straight pat'n	20
No. 11 —4 in. for heavy pipe, hub pattern	64
No. 11A—4 in. for heavy pipe, straight pat'n	56
Quarter Bend	
No. 13 —2 in. for heavy pipe, hub pattern	26
No. 13A—2 in. for heavy pipe, straight pat'n	28
No. 14 —4 in. for heavy pipe, hub pattern	90
No. 14A—4 in. for heavy pipe, straight pat'n	70

	Approx. Wt. Oz.
Taper Pattern	
No. 7A —2 x 1¼, 4 in. long, standard	10
No. 7 —2 x 1½, 3¾ in. long, standard	10
No. 1¼-8—2 x 1¼, 4 in. long, extra heavy	14
No. 08 —2 x 1½, 4 in. long, extra heavy	14
No. 08-16—2 x 1½, 4 in. long, extra heavy	16
No. 8 —2 x 2, 4 in. long, extra heavy	14
No. 8A —2 x 2, 4 in. long, extra heavy	16
No. 8B —2 x 2, 8 in. long, extra heavy	36
No. 8C —2 x 2, 8 in. long, standard	28
No. 0A —3 x 4½ in. long, extra heavy	22
No. 2A —4 x 4½ in. long, extra heavy	30
No. 2 —4 x 5 in. long, extra heavy	36
Vent and Elbow Patterns	
Short Pattern	
No. 9 —3 x 2 in. Turned end for standard or heavy pipe	16
No. 9A —3 x 1½ in. Turned end for standard or heavy pipe	16
No. 9B —2½ x 1½ in. Turned end for 1½-in. iron pipe and 1½-in. lead pipe	12
Long Pattern	
No. 10 —3 x 2 in. for standard or heavy pipe	22
No. 10A—3 x 2 in. for heavy pipe only	26
Elbow Pattern	
No. 15—2 in	32
Closet Caulking Flange	
No. 20—2½ in. high	30

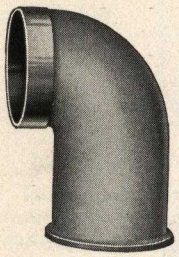


No. 2.
Taper Pattern



No. 8
Taper Pattern

Write for Prices



No. 14



No. 11
Eighth Bend—Quarter Bend



No. 12A



No. 9



No. 10
Vent and Elbow Patterns



No. 15

L. M. Co. Trap Screw Ferrules

Notice: We can supply Trap Screw Ferrules (Cleanouts) in standard weights with either taper plug or flange cap and in Boston, New York and Hartford Regulations.

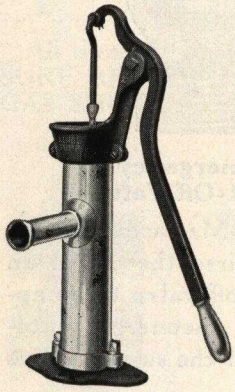


Fig. 20

Athol Pumps

These pumps are exceptionally well made. The boxes, rods, etc., are made of bronze. Bronze metal screws are used for fastening leathers to the boxes. Care is taken to see that all parts that come in contact with water are made of a metal that the water will not affect. The pumps are ornamental, are very good looking and are reasonably priced. Athol pumps are easy to install, easy to operate, and easy to repair. They are light but strong and durable.

Fig. 20—Nickel Plated Pump—This is made of copper and bronze, nickel plated. Considered one of the best short pumps on the market. A very easy pump to set.

Fig. 57—New England Copper Pump—These pumps are made of seamless copper tubing for either iron or lead pipe connection. They are furnished with or without air chamber and in copper finish or nickel plated. The copper finish is lacquered to prevent tarnishing.

Write for Complete Catalog with Prices

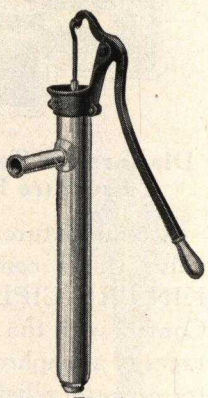


Fig. 57

Athol Unions and Union Ferrules

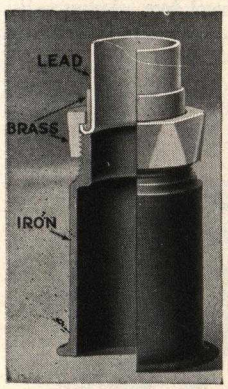


Figure 33

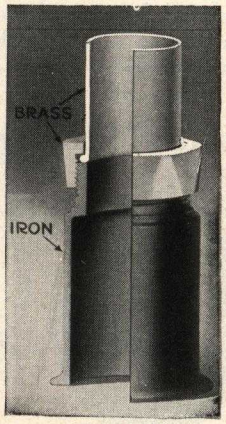


Figure 32

Soil Pipe Union Ferrules

Fig. 33—A soil pipe union ferrule for connecting 2-inch soil pipe with 1¼-inch or 1½-inch lead pipe without the use of solder. The method is very simple, as shown in the illustration. The turned-over end of the lead pipe forms the packing. Serves as a cleanout and can be disconnected at any time. No special tools required. Made in two sizes.

Fig. 33A—⅛ Bend Union Ferrule same as Fig. 33.

Prices	Fig. 33	Fig. 33A
2-inch x 1¼-inch Iron Body with Brass Union	$0.90	$1.10
2-inch x 1¼-inch All Brass	1.30	1.70
2-inch x 1½-inch Iron Body with Brass Union	1.10	1.30
2-inch x 1½-inch All Brass	1.50	1.90

Fig. 32—A soil pipe union ferrule for connecting 2-inch soil pipe with lead pipe by soldering or wiping the lead pipe to brass tube or tail piece. Has a ground joint and requires no packing. It serves as a cleanout.

Fig. 32A—⅛ Bend Union Ferrule same as Fig. 32.

Prices	Fig. 32	Fig. 32A
2-inch x 1¼-inch or 1½-inch Iron Body with Brass Union	$1.00	$1.20
2-inch x 1¼-inch or 1½-inch All Brass	1.40	1.80
2-inch x 1½-inch (only) Iron Body with Brass Union	1.20	1.40
2-inch x 1½-inch (only) All Brass	1.60	2.00
2-inch x 2-inch (only) Iron Body with Brass Union	1.50	1.70
2-inch x 2-inch (only) All Brass	2.00	2.40

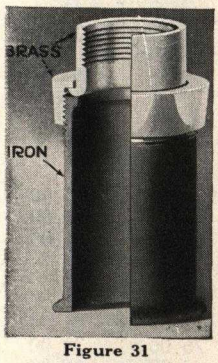


Figure 31

Soil Pipe Union Ferrule

Fig. 31—A union ferrule for connecting iron pipe with 2-inch soil pipe. It has a ground joint.

Fig. 31A—Eighth Bend Union Ferrule, same as Figure 31.

Prices	Fig. 31	Fig. 31A
2-inch x 1¼-inch Iron Body with Brass Union	$1.30	$1.50
2-inch x 1¼-inch All Brass	1.70	2.00
2-inch x 1½-inch Iron Body with Brass Union	1.50	1.70
2-inch x 1½-inch All Brass	1.90	2.20

Lead Pipe to Lead Pipe Union

Fig. 36—A union for connecting lead pipe to lead pipe without the use of solder, as shown in the illustration. The turned-over end of lead pipe forms the packing.

Prices	Fig. 36
1¼-inch x 1¼-inch Iron Bushing with Brass Union	$0.90
1¼-inch x 1¼-inch All Brass	1.30
1½-inch x 1½-inch Iron Bushing with Brass Union	1.10
1½-inch x 1½-inch All Brass	1.50

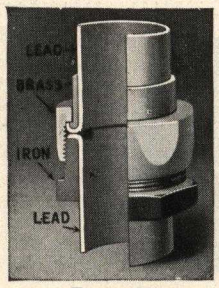


Figure 36

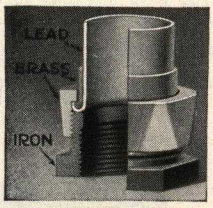


Figure 35

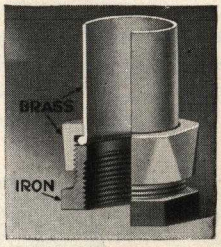


Figure 34

Iron Pipe to Lead Pipe Unions

Fig. 35—A union for connecting iron pipe with lead pipe without the use of solder. The method is very simple, as shown in the illustration. The turned-over end of lead pipe forms the packing. Has female thread for iron pipe.

Fig. 35B—Same as Fig. 35 except it is reducing. Made in one size only.

Fig. 34—A union for connecting iron pipe with lead pipe by soldering or wiping the lead pipe to the brass tube or tail piece. It has a ground joint and no packing is required. Has female thread for iron pipe.

Fig. 34B—Same as Figure 34 except it is a reducing union. Made in one size only.

Prices	Fig. 35	Fig. 34
1¼-inch L. P. x 1¼-inch I. P. Iron Bushing with Brass Union	$0.90	$1.00
1¼-inch L. P. x 1¼-inch I. P. All Brass	1.30	1.40
1½-inch L. P. x 1½-inch I. P. Iron Bushing with Brass Union	1.10	1.20
1½-inch L. P. x 1½-inch I. P. All Brass	1.50	1.60
	Fig. 35B	Fig. 34B
1¼-inch L. P. x 1½-inch I. P. Iron Body with Brass Union	$1.10	$1.20
1¼-inch L. P. x 1½-inch I. P. All Brass	1.50	1.60

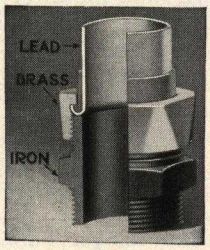


Figure 35A

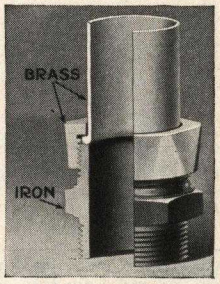


Figure 34A

Iron Pipe to Lead Pipe Unions

Fig. 35A—A union for connecting lead pipe with iron closet bends or drum traps having standard threaded openings, or any standard fittings, without the use of solder. Same as Figure 35, except it has male thread for iron pipe.

Prices Figure 35A	Iron Body Brass Union	All Brass
1¼-inch L. P. x 1¼-inch I. P	$1.00	$1.40
1¼-inch L. P. x 1½-inch I. P	1.00	1.40
1¼-inch L. P. x 2 -inch I. P	1.10	1.50
1½-inch L. P. x 1½-inch I. P	1.20	1.60
1½-inch L. P. x 2 -inch I. P	1.30	1.70

Fig. 34A—A union for connecting lead pipe with iron closet bends or drum traps having standard threaded opening, or any standard fittings. Same as Figure 34, except it has male thread for iron pipe.

Prices Figure 34A	Iron Body Brass Union	All Brass
1¼-inch L. P. x 1¼-inch I. P	$1.10	$1.50
1¼-inch L. P. x 1½-inch I. P	1.10	1.50
1¼-inch L. P. x 2 -inch I. P	1.20	1.60
1½-inch L. P. x 1½-inch I. P	1.30	1.70
1½-inch L. P. x 2 -inch I. P	1.40	1.80
2 -inch L. P. x 2 -inch I. P	1.60	2.00

Subject to Jobbers' Discounts. Write for Complete Catalog

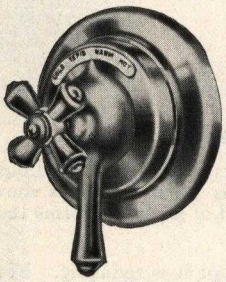
LEONARD-ROOKE COMPANY PROVIDENCE, R. I.

P. O. Address—Elmwood Station

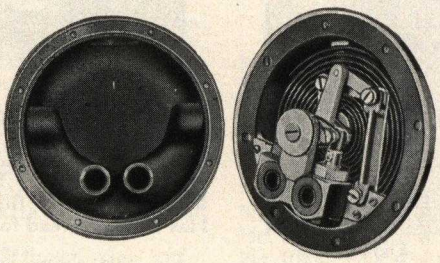
Incorporated 1913

Plant—1360 Elmwood Ave., Auburn, R. I.

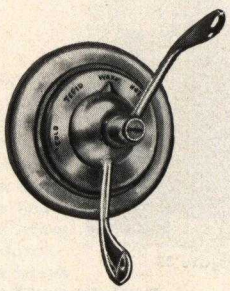
Leonard Thermostatic Water Mixing Valves



Type L-9-C
(Concealed Piping)

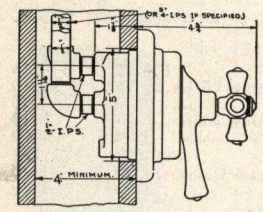


Type L-9-C (Concealed Piping) with face plate removed



L-9-C Elbow
Temperature Control

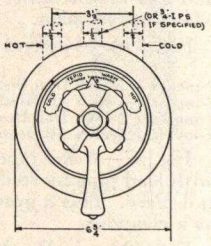
Type L-9 Leonard Valves



L-9-C

The Type L-9 Leonard Valve consists of two parts—base casting to which supply pipes are connected, and face plate to which working parts are attached. Operating parts are phosphor bronze, and are interchangeable. Castings are bronze.

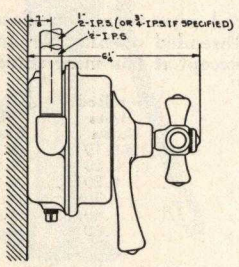
This valve enables shower to be started at either cold, tepid, warm or hot, and also permits the regulating of the flow of blended water. Unequal pressures in hot and cold supply do not affect accuracy of operation. If hot or cold water supply should cease entirely, valve would shut off automatically. One quarter turn of hand wheel opens or closes valve. Has adjustable safety stops under escutcheon, for limiting temperature range. Thermostat is of the Leonard solid metal type. Type L-9 Valves can be furnished with elbow control. Especially adapted for surgeons' sinks.



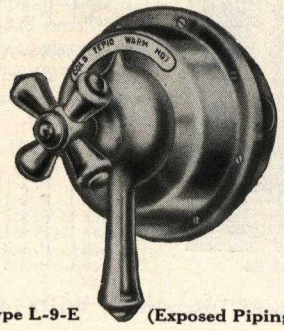
L-9-C

Price List

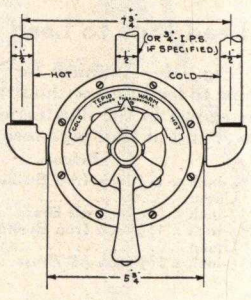
	Bronze Castings		White Metal Castings
	N. P. Finish	Chromium Finish	
TYPE L-9-C—CONCEALED PIPING with flange. Furnished with word scale only: Cold, Tepid, Warm, Hot. Check valves are not furnished but should be installed when valve is piped for more than one fixture. Capacity 7 gallons per minute under 45 pounds pressure. Inlets ½ inch, outlet ½ inch I. P. Size. ¾ inch outlet can be furnished on request. 4-arm metal handle and metal lever			
With Elbow Control	$75.00	$83.00	$86.00
Octagon Design	82.00	90.00	93.00
	80.00	88.00	91.00
TYPE L-9-E—EXPOSED PIPING—Furnished with word scale only: Cold, Tepid, Warm, Hot. Check valves are not furnished but should be installed when valve is piped for more than one fixture. Capacity 7 gallons per minute under 45 pounds pressure. Inlets ½ inch, outlet ½ inch I. P. Size. ¾ inch outlet can be furnished on request. 4-arm metal handle and metal lever			
With Elbow Control	69.00	76.00	79.00
	76.00	83.00	86.00



L-9-E



Type L-9-E (Exposed Piping)



L-9-E

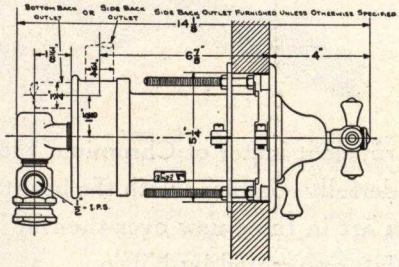
Leonard Thermostatic Water Mixing Valves

The mixing process is as follows: Hot water enters on the left hand side and cold water on the right, mixing within the valve as they pass through the thermostatic coils. These thermostatic coils are affected by the combined water temperatures which cause them to automatically adjust two sets of balanced valves. The balanced valves control the amount of hot and cold water passing into the valve in order to maintain the temperature called for by the temperature pointer on the temperature scale which is stamped on the valve.

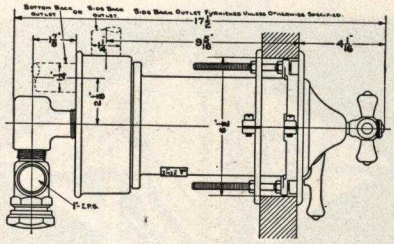
The castings and interior parts of Model B Leonard Valves are made from bronze and phosphor bronze.



B-10



B-10



B-40

Price List Model B Valves

Prices are list f. o. b. Providence, R. I. Shipments will be made by express if not otherwise ordered.

Model B Valves furnished with temperature scale, i.e., 80, 90, 100, 110, 120 degrees. Special temperature markings can be furnished.

*When ordering Model B Valves for concealed piping, always state whether valve is to be placed in a horizontal or vertical position. If not specified, concealed valves will be furnished for horizontal installation.



B-40



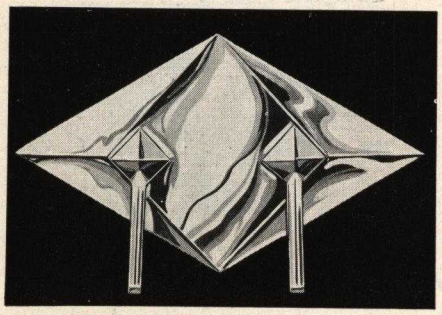
B-120

	Bronze Castings		White Metal Castings
	N. P. Finish	Chromium Finish	
MODEL B-5 (Baby Bath)—Furnished with check valves and strainers, 4-arm metal handle. Capacity restricted to 5 gallons per minute under 45 pounds pressure. Inlets ½ inch, outlet ¾ inch I. P. Size.			
Exposed Piping only	$125.00	$135.00	$140.00
MODEL B-10—Furnished with check valves and strainers, 4-arm metal handle. Capacity 15 gallons per minute under 45 pounds pressure. Inlets ½ inch, outlet ¾ inch I. P. Size.			
Exposed Piping	125.00	135.00	140.00
***Concealed Piping (with flange) either Round or Octagon Design**	131.00	141.00	146.00
MODEL B-20—Furnished with check valves and strainers, 4-arm metal handle. Capacity 25 gallons per minute under 45 pounds pressure. Inlets ¾ inch, outlet 1 inch I. P. Size.			
Exposed Piping	140.00	150.00	155.00
***Concealed Piping (with flange) either Round or Octagon Design**	146.00	156.00	161.00
MODEL B-40—Furnished with check valves and strainers, 4-arm metal handle. Capacity 45 gallons per minute under 45 pounds pressure. Inlets 1 inch, outlet 1¼ inches I. P. Size.			
Exposed Piping	175.00	190.00	195.00
***Concealed Piping (with flange) either Round or Octagon Design**	190.00	205.00	210.00
MODEL B-60-70—Furnished with check valves and strainers, 4-arm metal handle. Capacity 55 gallons per minute under 45 pounds pressure. Inlets 1¼ inches, outlet 1½ inches I. P. Size.			
Exposed Piping	200.00	215.00	220.00
***Concealed Piping (with flange) either Round or Octagon Design**	215.00	230.00	235.00
MODEL B-120—Furnished with strainers and 4-arm metal handle. Check valves are not furnished but should be installed in the supply pipes. Capacity 120 gallons per minute under 45 pounds pressure. Inlets 1½ inches, outlet 2 inches I. P. Size.			
Exposed Piping only	275.00	295.00	Not Furnished
MODEL B-200—Furnished with strainers and 4-arm metal handle. Check valves are not furnished but should be installed in the supply pipes. Capacity 200 gallons per minute under 45 pounds pressure. Inlets 2 inches, outlet 2½ inches I. P. Size.			
Exposed Piping only	330.00	350.00	Not Furnished
LOCK ESCUTCHEONS can be furnished for either volume and temperature control or temperature control only at no extra charge.			
WALL BRACKETS: For Models B-5, B-10, B-20: SHELL TYPE	8.50	9.50	.....
BASE TYPE	10.00	12.50	.....
For Models B-40, B-60: SHELL TYPE	11.00	12.00	.....
BASE TYPE	14.00	18.00	.....
THERMOMETER—"V" shape, metal case, glass front, ⅜-inch thread:			
Straight Stem	8.50	12.00	Not Furnished
Angle Stem	9.00	12.50	

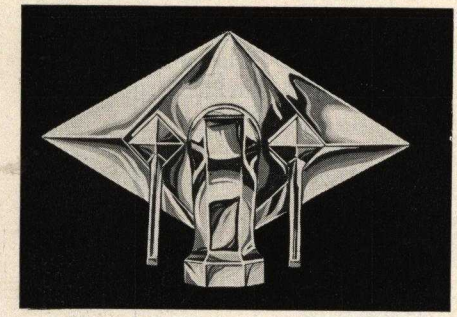
NORTHERN INDIANA BRASS CO. ELKHART, IND.

NIBCO

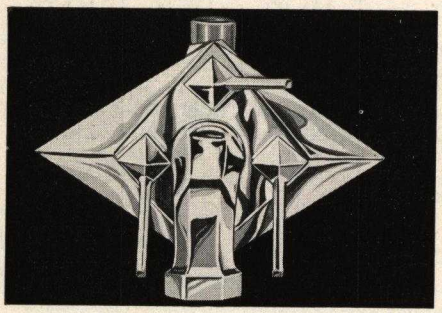
Valves and Valve Handles



No. 3—Wall Shower Valve



No. 2—Over-Rim Tub Filler Valve

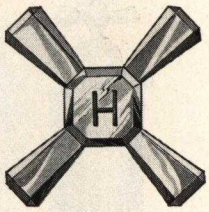


No. 1—Diverto Tub and Shower Valve

The permanent luster of Chromium Plating has been wonderfully combined with the beautiful lines of modern art in these new over-the-rim Tub and Shower Fixtures created by Nibco.

Standard practice adopted in valve construction to conform with the latest sanitary codes, provides utility which is both practical and efficient in every sense.

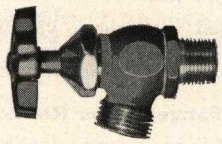
All of these valves are provided with renewable brass seats and stuffing boxes which are accessible from the front. They will fit into thin wall partitions and can be installed as a single unit, without any complicated piping. A galvanized iron box is included with each valve to be set into the plaster or tile wall, similar to those used for electric switches.



No. 40—Basin Cross

No. 41—Bath Cross

These solid, all-metal faucet crosses are the ideal solution to the problem of replacing unsightly, broken China handles. They will not chip off, break or tarnish, and their modern design and brilliant chromium finish improves the appearance of any bathroom. They fit all styles and sizes of valve stems, and are available with the letters C, H, W and S stamped on them. They are regularly packed two in a box (C and H) and complete instructions for easy installation are furnished with every set.



No. 82—Boiler Drain



No. 81—Sill Cock



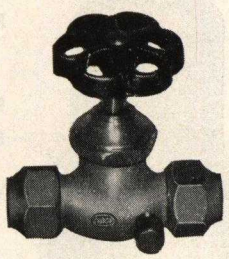
No. 75—Stop and Waste Valve (Without Stuffing Box)



No. 79—Stop Valve (With Stuffing Box)



No. 78—Stop Valve (Without Stuffing Box)



No. 76—Stop and Waste Valve (With Stuffing Box)

NIB-CO

NIBCO Closet Tank Fittings



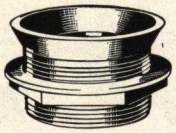
No. 90
(QUIET)
Ball Cock

NIBCO Ball Cocks are specified as standard equipment by leading potteries. The No. 90 (QUIET) model at the left banishes all noise. The No. 91 (CHINA SEAT) model at the right has a by-pass, syphon body action.

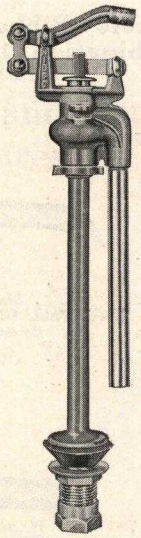


No. 34—D. A. Trip Lever
No. 32—S. A. Trip Lever

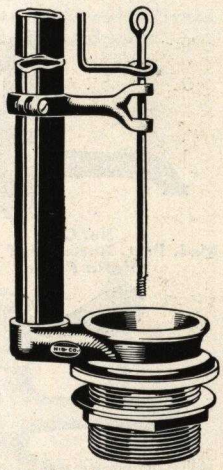
Brilliant Art Chromium all-metal handle will not chip off, break or tarnish. Built for quick assembly with lock-nut under escutcheon on outside of tank. Beautiful appearance and positive action.



No. 10
Sanitas Spud

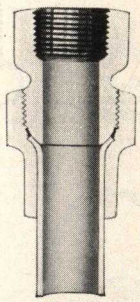


No. 91
(CHINA SEAT)
Ball Cock

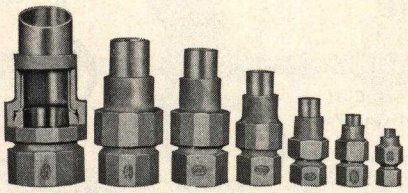


No. 201
Flush Valve

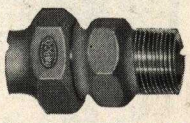
NIBCO Copper Tube Compression Fittings



Sectional View of
Compression
Coupling



These fittings have a ball joint seat meeting the flanged end of the tubing at an angle of 45 degrees. When the coupling nut is tightened a wedge is thus formed which holds the tube firmly in position. Fittings from ⅛-inch to 2-inch nominal pipe sizes available in couplings, elbows, tees, reducers, etc.

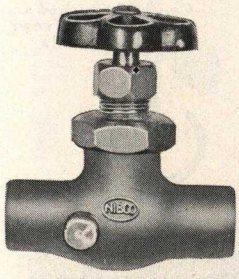


No. 504—Copper to Male I. P. Compression Coupling

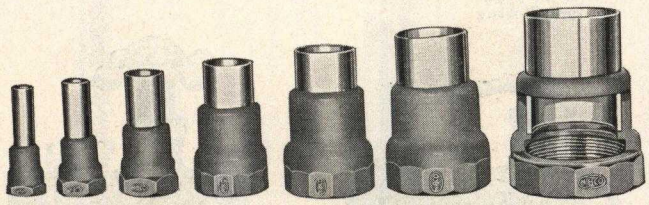


No. 503—Copper to Female I. P. Compression Coupling

NIBCO Copper Tube Soldered Fittings



No. 576—Copper to
Copper Stop and
Waste Valve



These fittings slip over the straight end of the tubing and are soldered into place by the use of a blow torch. Send for the latest information on this line of NIBCO Fittings.



No. 554—Copper to
Male I. P. Coupling



No. 553—Copper to
Female I. P.
Coupling

MARVEL MACHINE & BRASS WORKS — CLEVELAND, OHIO

4117 Trowbridge Avenue, S. W.

Representatives:

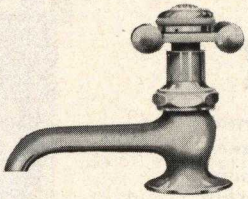
Boston, Mass., M. S. Spitz, 558 Little Bldg.
Los Angeles, Cal., Fred F. Ten Eyck, 3923 West 59th Street.
Montreal, Que., Can., G. Mason Price, 392 St. James Street.
New York, N. Y., Leo Tuteur, 200 Broadway.

Manufacturers of

Self Closing Basin Faucets—Bibbs—Stops—Urinal and Pantry Faucets—Shower—Mixing Valves Niagara Combination Drinking Fountains and Self Closing Oil Barrel Valves



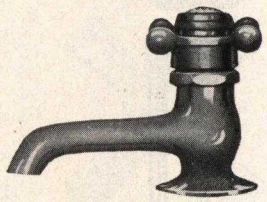
No. C-19
Med. Patt. Boston Self Closing Basin Faucet



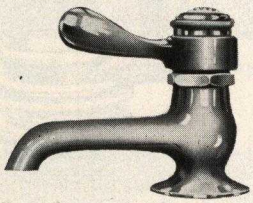
No. C-20
Med. Patt. Boston S. C. 4 Ball Basin Faucet



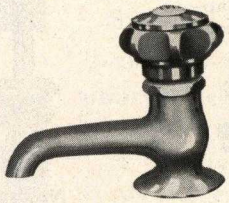
No. C-24
Std. Patt. Boston S. C. 4 Ball Basin Faucet



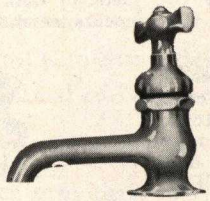
No. C-25
Std. Patt. Ball Bearing 4 Ball S. C. Basin Faucet



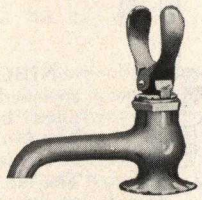
No. C-26
Std. Patt. Ball Bearing Lever S. C. Basin Faucet



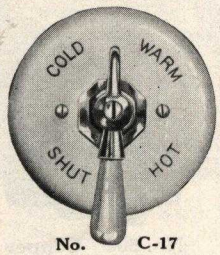
No. C-27
Std. Patt. Ball Bearing Crown S. C. Basin Faucet



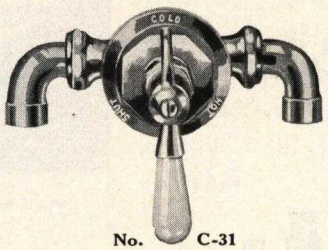
No. C-28
Std. Patt. Ball Bearing "T" S. C. Basin Faucet



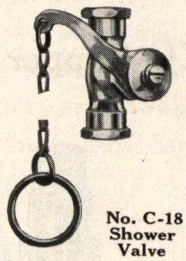
No. C-21
Std. Patt. Doherty S. C. Basin Faucet



No. C-17
Concealed Mixing Valve



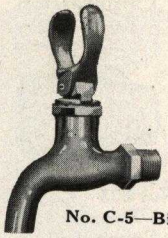
No. C-31
Exposed Mixing Valve



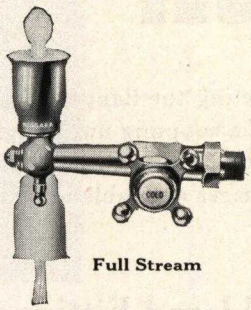
No. C-18
Shower Valve



No. C-29
Quick Compression Shower Valve



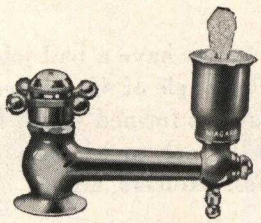
No. C-5—Bibb



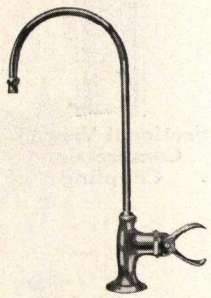
Full Stream

No. C-3
Niagara Combination Drinking Fountain
Bibb Type
Self Closing

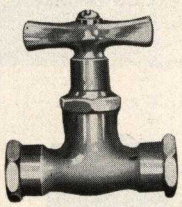
Bubbler Flow



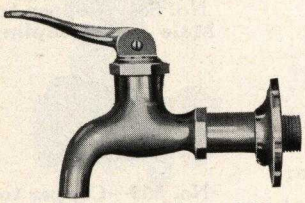
No. C-4
Niagara Fountain
Basin Faucet
Self Closing



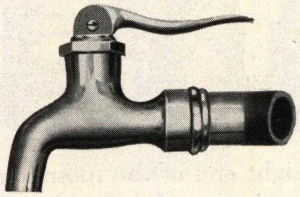
No. C-30
Can be furnished in Compression-Tee or 4 Ball Handle



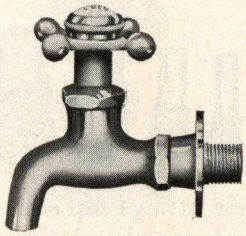
No. C-13—Stop



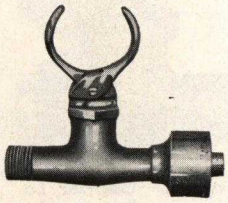
No. C-8—Loose Flange Bibb



No. C-9—Garage Faucet



No. C-10—Solid Flange Bibb



No. C-15—Urinal Stop

Self Closing Plumbers Brass Goods and Mixing Valves made of the finest material.
Estimates cheerfully given—Price Lists and Catalogs on request.

THE ROYAL BRASS MANUFACTURING COMPANY

1418-24 East 43rd Street, CLEVELAND, OHIO

ROYAL
(Trade Mark)

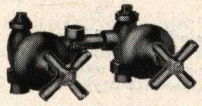
Illustrating a Few of Our New Shampoo Faucets and Bath and Lavatory Fixtures

Pop-Up Lavatory Drain
With 1¼-Inch Tail Piece



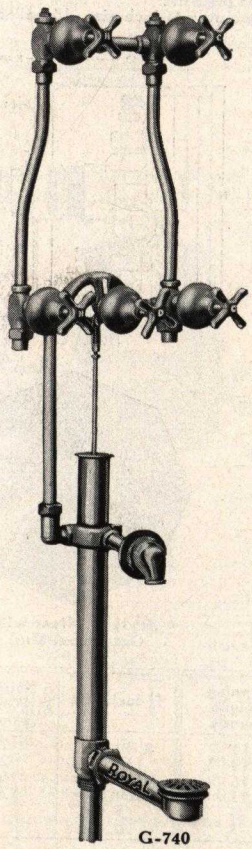
G-710

Two-Valve Shower Body
Bell Escutcheon Type



G-715

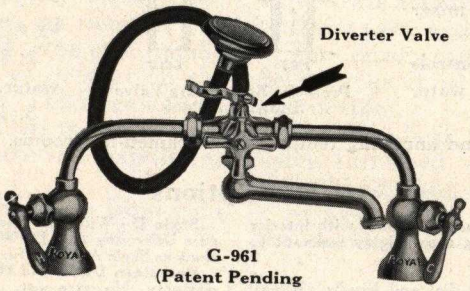
Top Nozzle Combination Built-In Bath and Shower Fixture
Bell Escutcheon Type



G-740

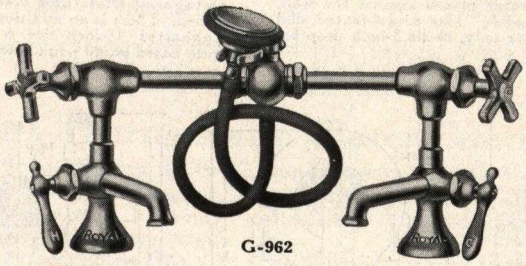
Combination Lavatory and Shampoo Faucet
Low Pattern — All Metal Handles

Diverter Valve



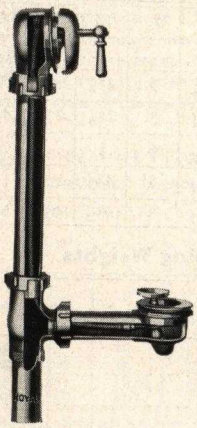
G-961
(Patent Pending

Combination Lavatory and Shampoo Faucet
Low Pattern — All Metal Handles



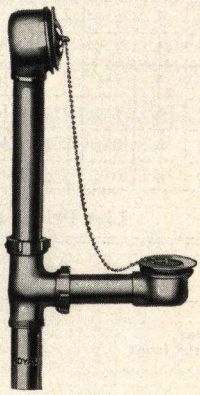
G-962

Trip-Lever Pop-Up Bath Drain
(Patent Pending)



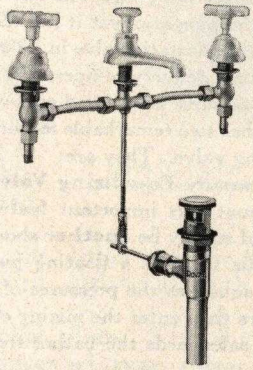
G-755

Built-In Bath Drain and Overflow



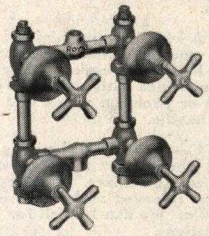
G-760

Lavatory Combination Fixture
With Pop-Up Drain
Valves with Renewable Seats
With Brass Spout



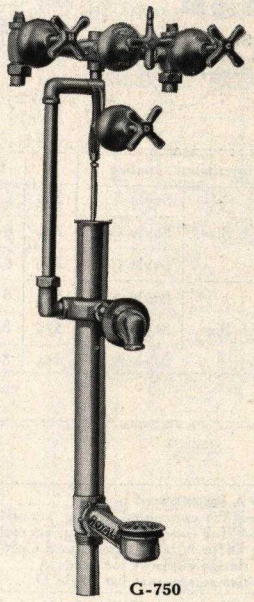
G-700

Four-Valve Shower Body
Bell Escutcheon Type



G-725

Top Nozzle Built-In Combination Bath and Shower Fixture
Bell Escutcheon Type
With Royal "Diverter" Transfer Valve
(Patent Pending)



G-750

We Sell the Jobber Exclusively

THE POWERS REGULATOR COMPANY

2757 Greenview Avenue, CHICAGO, ILL. 231 East 46th Street, NEW YORK, N. Y.

Offices in 43 Cities

Styles A, B and C for Hot and Cold Water

Powers Safety Shower Mixers

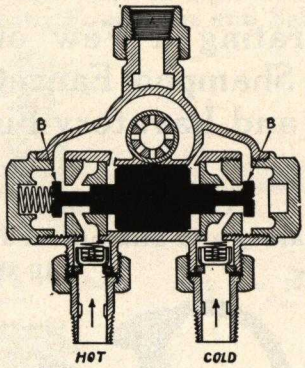
Style D for Steam and Cold Water

Do not confuse the Powers Shower Mixer with any of the so-called "anti-scald" mixing valves. It is entirely different! The Powers Shower Mixer is not thermostatic, yet it has all the characteristics of a thermostatic valve in its ability to maintain a constant delivery temperature in spite of fluctuating pressures in hot and cold water.

It has two remarkable features found in no other mixing valve. They are:

Pressure Equalizing Valve (shown at right). Without this important feature a Powers mixer would simply be **another** shower mixer.

This valve is a floating piston which controls and equalizes the pressures of hot and cold water before they enter the mixing chamber.



Pressure Equalizing Valve Shown in Black

It safeguards the bather from scalding and annoying temperature changes caused by pressure changes in supply lines due to use of nearby showers, faucets and flush valves.

If cold water supply fails, it substantially shuts off hot water.

Safety Stop Screw—This can be set to limit the delivery temperature of the shower.

Three important advantages are gained through its use:

1. It protects the bather from scalding caused by a "dead end" in the hot water line.
2. It saves fuel by eliminating waste of hot water.
3. It reduces decorating expense by preventing "steamed-up" rooms.

Descriptions

All Powers Shower Mixers are constructed of brass and bronze with interior and working parts chromium plated, thus rendering them highly resistant to corrosion.

Style A—for exposed piping. Has nickel plated dial and handle. If wall flange is required distance from center of inlets to wall should be specified.

Style B—for concealed piping, accessible from the rear. The neck of the mixer is provided with a 1½-inch extension to accommodate thickness of marble slab, tile or panel on which dial and handle are mounted. Has nickel plated dial and handle.

Style C—for concealed piping, accessible only from the front. For this is provided a metal box to be inserted in wall flush with surface, to receive pipe connections and mixer. The large dial is afterwards placed against the wall, and when removed makes the instrument accessible. Has nickel-plated dial and handle. We can furnish for the ½-inch mixer only, shells 3-inch deep for thin partitions.

Style D—Will mix steam at 10 to 100 pounds and cold water at any pressure delivering COLD, WARM or HOT Water instantly. Has same dimensions as Style A, but is furnished with elbow connections only.

Porcelain Dials and Handles can be furnished for Styles B and C, ½-inch size only. No extra cost.

Check Valves—Powers Mixers are provided with built-in check valves as standard equipment.

Connections—Note: Style A mixer has female connection without union at outlet, all other mixers have male connection with union at outlet. Unless otherwise specified, all mixers except Style D are provided with standard straight union connection. Elbow connections will be substituted if desired.

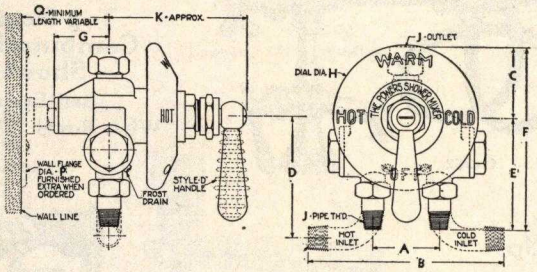
For White Metal or Chromium Plated dials, handles and exposed parts, Styles A, B and C, add 10 per cent.

Octagonal Dials and Handles can be furnished for Styles B and C when specified. There is an additional charge. See price list.

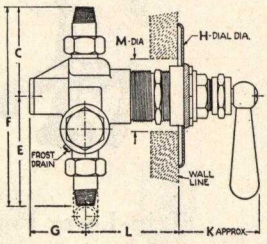
Capacity: ½-inch size, 6 gallons per minute; ¾-inch size, 18 gallons per minute based on 40 pounds water pressure.



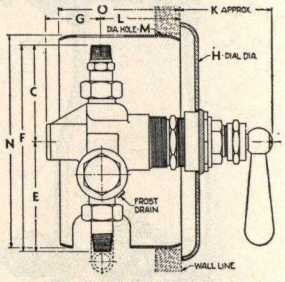
Styles A and B Mixer



Style A



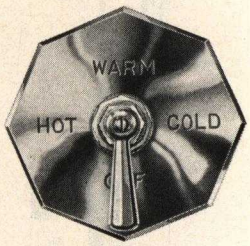
Style B



Style C

Principal Dimensions

Dimensions, Inches		A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q
½-inch Size..	Style A....	2 5/16	6¾	2½	4¼	4	6½	2	5	½	5⅛	.....	.....	.....	.....	5	2⅝
	Style B....	2 5/16	6¾	3⅛	4¼	4	7⅛	2	5	½	3¾	3	2½	.....	.....	.....	.....
	Style C....	2 5/16	6¾	3½	4¼	4	7½	2	8¼	½	3¾	3	7⅝	7½	4¼	.....	.....
¾-inch Size..	Style A....	3⅝	8½	2½	6¾	6	8½	2¼	7¼	¾	5⅝	6	.....	.....	.....	6	3⅝
	Style B....	3⅝	8½	4½	6¾	6	10½	2¼	7¼	¾	3⅞	3	3½	.....	.....	.....	.....
	Style C....	3⅝	8½	4½	6¾	6	10½	2¼	10⅞	¾	3⅞	3	10½	10½	5½	.....	.....



Style C Mixer with Octagonal Dial

List Prices and Shipping Weights

STYLES	½-inch Size	Shipping Weight Pounds	¾-inch Size	Shipping Weight Pounds
Style A for exposed piping	$40.00	13	$ 80.00	25
Style B for concealed piping, accessible from the rear	45.00	12	110.00	25
Style C for concealed piping, accessible only from the front	50.00	16	120.00	50
Style D for Mixing Steam and Cold Water	50.00	13	100.00	35
Wall flange support for Style A	2.75	3	5.00	5
Wall flange support for Style D	3.00	3	6.00	5

For Chromium plating Styles A, B and C, in place of nickel, add 10%.
For Octagonal Dials and Handles, Styles B and C, add $10.00 net to price of ½-inch size, and $15.00 net to price of ¾-inch size.

For Powers Hot Water Tank Regulators See Page 359

Powers Thermostatic Water Mixer

For Shower Baths, Baby Baths, Hydrotherapeutic Baths, Shampoo Fixtures, Etc.



Type T. E., for Exposed Piping

Safety Features—The temperature of the mixture delivered by the mixer remains constant regardless of temperature or pressure changes in the hot or cold water supply lines. There are never sudden "shots" of hot or cold water.

Failure of either supply completely shuts off the delivery flow.

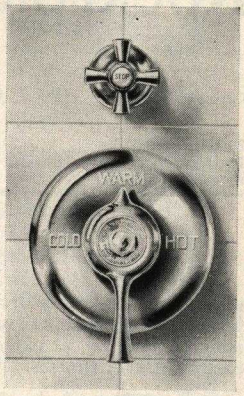
Restricting the delivery flow has no effect upon the delivery temperature.

Capacity—The capacity of this mixer varies according to the supply pressures. With supply pressures of 40 lbs. the maximum flow is 8 gallons per minute.

Ease of Adjustment—The small cross arm handle labeled "Shut Off" is used to turn on or shut off the delivery and to regulate the volume. The large handle adjusts the temperature and may be left in any desired position. It is not possible to mistake one handle for the other.

Temperature range of standard mixer is from cold water to 115° F. A maximum temperature of 140° F. can be furnished upon special order.

Durable Construction—The unusually sensitive and responsive thermostatic element is of the same rugged type as that used successfully for over 15 years in thousands of Powers Thermostatic Water Controllers. A flexible metal packless assembly replaces the usual packing box. The mixer body is made of brass with all internal parts of phosphor bronze. The mixing valve seats are chromium plated to resist wear and corrosion.

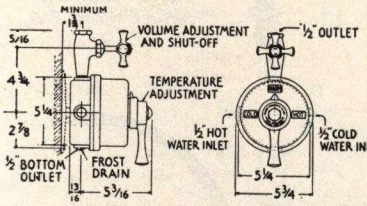


Type T. C., for Concealed Piping

The mixer can be piped for either up or down delivery as it is equipped with outlets at both top and bottom.

The standard finish is nickel plate. The shut-off valve furnished with the concealed type mixer has china handle and escutcheon.

In cases where a special shut-off valve is required, the standard Powers shut-off valve may be omitted.



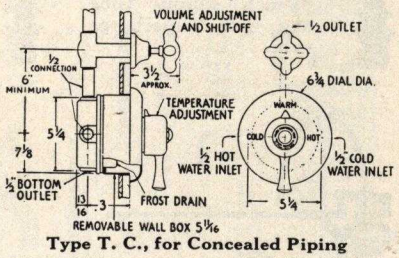
Type T. E., for Exposed Piping

List Prices

½" Thermostatic Water Mixer

Exposed Installation, Type T. E.	$64.00
Concealed Installation, Type T. C.	70.00
Wall Flange	6.00

For chromium plate add 10% to List Price

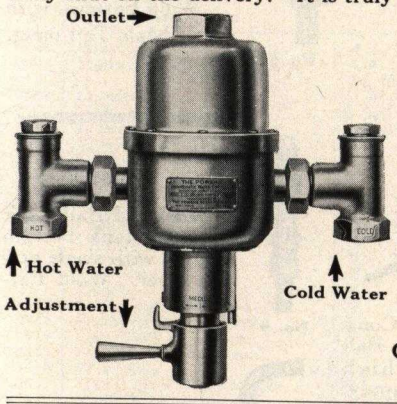


Type T. C., for Concealed Piping

Powers Thermostatic Water Controller

For Continuous Flowing Baths, Group Showers, Needle Showers, Etc.

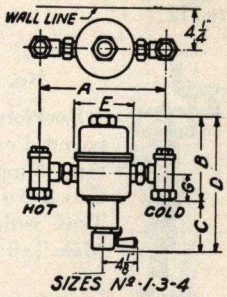
This Controller will deliver water at any desired temperature below the danger point. Failure of the cold water supply will substantially shut off the delivery. It is truly thermostatic, is provided with variable or locked adjustment, as may be preferred. Capacities up to 20 shower heads.



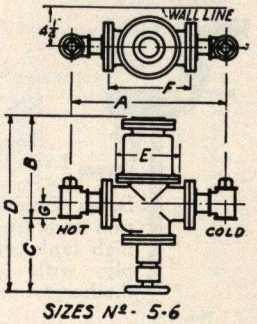
Controllers Nos. 1 to 4, inclusive, are made of brass and can be furnished in plain finish or full nickel-plate. Made in special metals if desired. Standard Nos. 5 and 6 have iron bodies, with bronze inner parts. Can also be furnished in all brass construction. All Controllers are furnished with inlet check valves and removable filter screens.

For Shower Bath Work controllers will be given maximum limit of 110 degrees unless otherwise specified. Controllers for Hot Water Line Control should be so specified and will be set to deliver at a maximum of 135 degrees.

Hot and cold water should always come from the same original source, or at least be under substantially the same pressure which, for best results, should not exceed 60 pounds. Use a pressure reducing valve if necessary. Send for Special Booklet and Bulletin 258.



SIZES Nº 1-3-4



SIZES Nº 5-6

Capacities, List Prices and Principal Dimensions
Capacities Based on 40 Pounds Pressure

Controller No.	Construction	Capacities: No. of Shower Heads	Capacities: Gallons per Minute	Connections: Inlet	Connections: Outlet	List Price	Dimensions, Inches: A	B	C	D	E	F	G	Shipping Weight Lbs.
1	All Brass..	1	15	½	¾	$100	9	6 5/8	6 5/8	13 1/4	6 1/8	.....	1 7/16	35
3	All Brass..	4	25	¾	1	125	10 1/2	6 15/16	6 7/8	13 1/4	6 1/8	.....	1 5/8	35
4	All Brass..	8	50	1	1¼	150	12 1/4	8 3/4	5 3/4	14 5/8	6 1/8	.....	2	50
5	Iron Body.	15	80	1¼	1½	175	16	13 1/16	9 1/4	22 3/4	8 1/8	9	1 3/4	85
5	All Brass..	15	80	1¼	1½	195	16	13 1/16	9 1/4	22 3/4	8 1/8	9	1 3/4	85
6	Iron Body.	20	100	1½	2	185	16 3/4	13 1/4	9 1/16	22 3/4	8 1/8	9	1 15/16	90
6	All Brass..	20	100	1½	2	250	16 3/4	13 1/4	9 1/16	22 3/4	8 1/8	9	1 15/16	90

For Chromium plated finish on Nos. 1, 3, 4 Controllers, add 10%.
Nos. 5 and 6 Iron Body Controllers can not be plated.
For Chromium plated finish on No. 5 all brass Controller, add $19.50 Net; on No. 6 all brass Controller, add $25.00 Net.
Removable key adjustment lock for Nos. 1, 3, 4 Controllers, add $8.00 List; for Nos. 5 and 6, add $12.00 List.
Panel mounting flange for Nos. 1, 3, 4 Controllers, add $8.00 List; for Nos. 5 and 6, add $12.00 List.

For Powers Hot Water Tank Regulators See Page 359

ROCKFORD BRASS WORKS ROCKFORD, ILL.

General Offices—700 South Main Street

WAREHOUSE STOCK

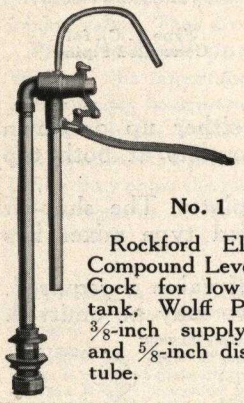
Chicago | New York | Baltimore | Houston | Los Angeles | San Francisco

SALES OFFICES

Baltimore, Md. | Boston, Mass. | Chicago, Ill. | Cleveland, Ohio | Houston, Texas
Indianapolis, Ind. | Kansas City, Mo. | Los Angeles, Cal. | Minneapolis, Minn. | Nashville, Tenn.
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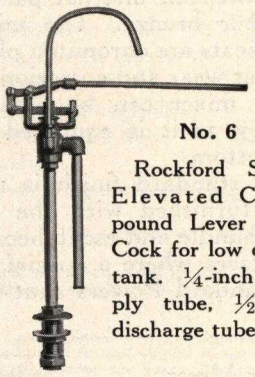
Rockford Ball Cocks

All Rockford Ball Cocks furnished with thread at union either ⅝—14, ¾-inch I. P. Thread, or ½-inch I. P. Thread. When ordering give size of thread desired. All plunger seat discs incased. On all Elevated Ball Cocks Supply Tubes are full Iron Pipe Size Seamless Brass, and all Shanks and Union Nuts are reamed for ⅜-inch Iron Pipe Size Slip Joint Connection. Refill Tubes and Float Rods furnished, if desired, at extra price. Nos. 1, 4 and 5 are shown with cast brass float arm with dual thread. Can be furnished with short cast float arm threaded ¼x20-inch Female if desired.



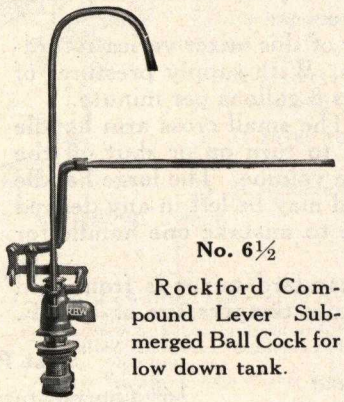
No. 1

Rockford Elevated Compound Lever Ball Cock for low down tank, Wolff Pattern. ⅜-inch supply tube and ⅝-inch discharge tube.



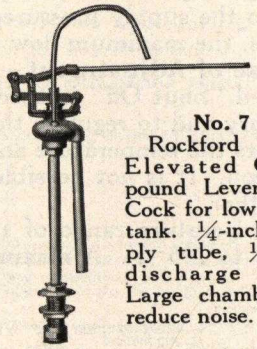
No. 6

Rockford Semi-Elevated Compound Lever Ball Cock for low down tank. ¼-inch supply tube, ½-inch discharge tube.



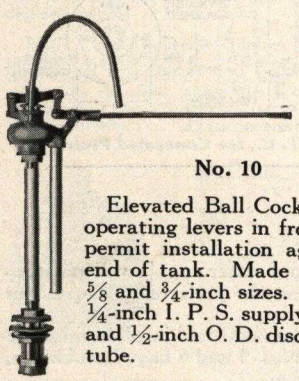
No. 6½

Rockford Compound Lever Submerged Ball Cock for low down tank.



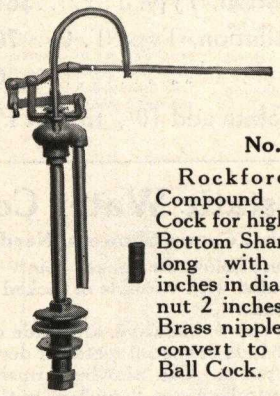
No. 7

Rockford Semi-Elevated Compound Lever Ball Cock for low down tank. ¼-inch supply tube, ½-inch discharge tube. Large chamber to reduce noise.



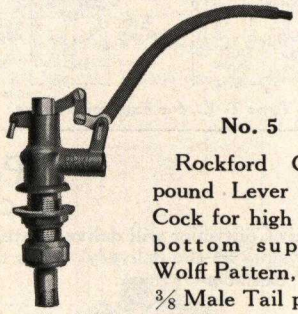
No. 10

Elevated Ball Cock with operating levers in front to permit installation against end of tank. Made in ½, ⅝ and ¾-inch sizes. With ¼-inch I. P. S. supply tube and ½-inch O. D. discharge tube.



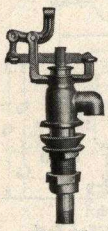
No. 7½

Rockford Elevated Compound Lever Ball Cock for high or low tank. Bottom Shank 2⅝ inches long with flange 2¼ inches in diameter. Locknut 2 inches in diameter. Brass nipple furnished to convert to a submerged Ball Cock.



No. 5

Rockford Compound Lever Ball Cock for high tank bottom supply. Wolff Pattern, with ⅜ Male Tail piece.



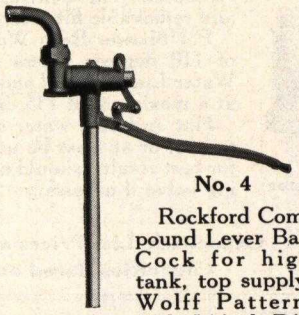
No. 65

Rockford Compound Lever Bottom Supply Ball Cock for High Tank with ⅜-inch Male Tail Piece.



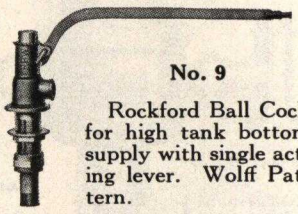
No. 8½

Rockford Hartford Type Bottom Supply Ball Cock.



No. 4

Rockford Compound Lever Ball Cock for high tank, top supply, Wolff Pattern, with ⅝-inch Discharge Tube.



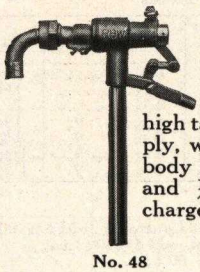
No. 9

Rockford Ball Cock for high tank bottom supply with single acting lever. Wolff Pattern.



No. 4½

Rockford Light Pattern Cast Brass Double Action Ball Cock for high tank top supply, with ½-inch discharge tube.



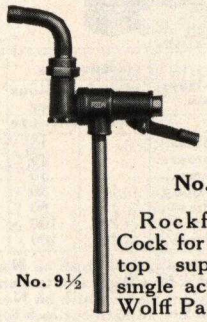
No. 48

Rockford Compound Lever Ball Cock for high tank top supply, with straight body seat casting and ½-inch discharge tube.



No. 8

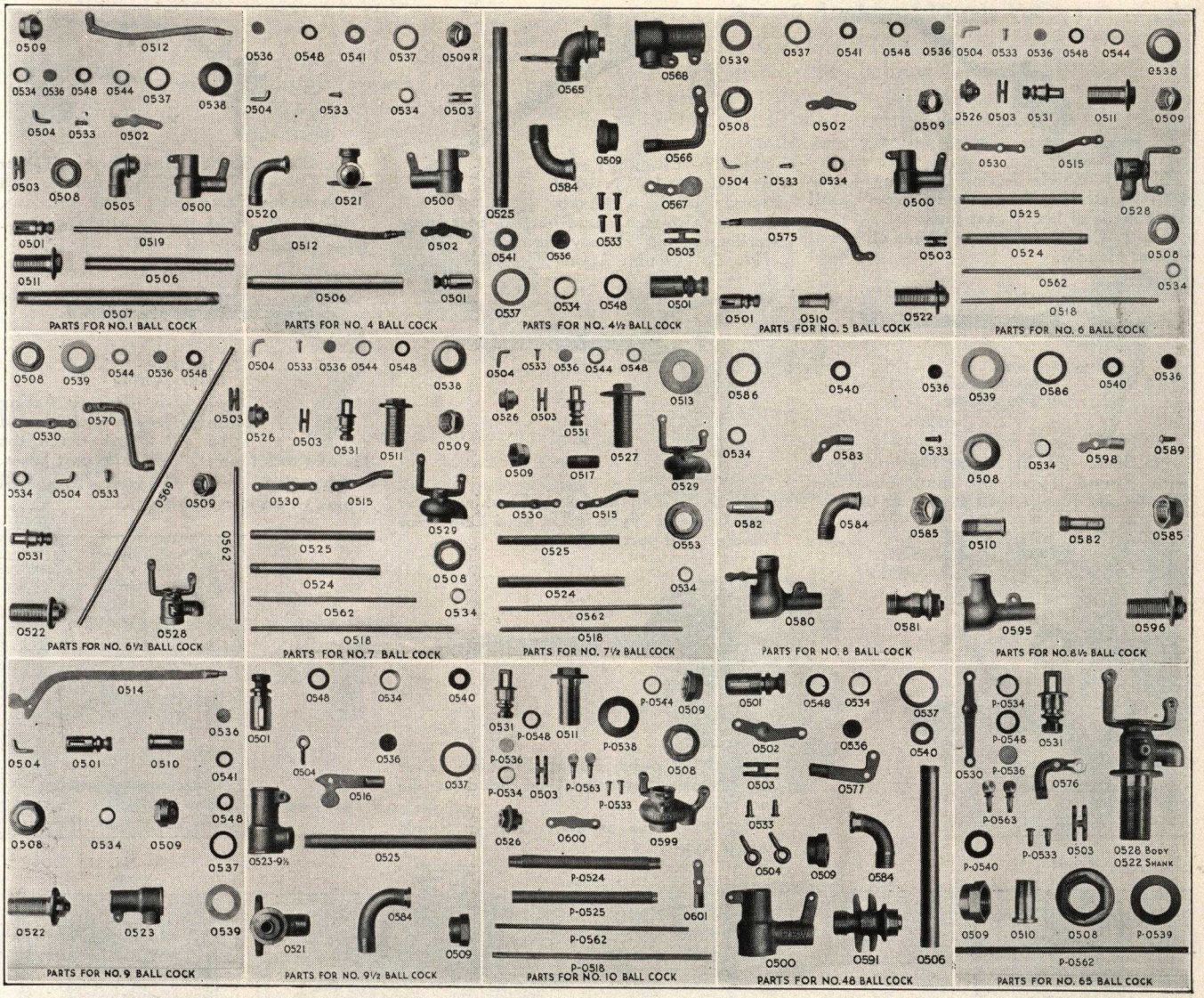
Rockford Hartford Type top supply Ball Cock.



No. 9½

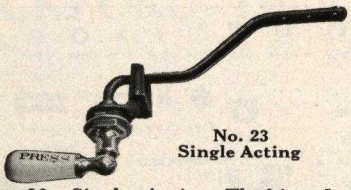
Rockford Ball Cock for high tank top supply with single acting lever. Wolff Pattern.

Ball Cock Parts



No.	Description	Used In	List
0500	Body	1, 4, 5, ½-inch No. 14, 48	$0.80
0501	Plunger Casting	1, 4, 4½, 5, 9, 9½, ½-inch No. 14, 48	.60
0502	Eccentric	1, 4, 4½, 5, ½-inch. No. 14, 48	.10
0503	Link	All Ball Cocks	.10
P-0504	L. Screw	All Ball Cocks	.05
0505	Elbow Seat	1	.85
P-0506	Discharge Tube ½"—20 Ga.	48	Price on application
P-0506	Discharge Tube ⅝"—20 Ga.	1, 4	Price on application
P-0507	Supply Tube ⅜"—I. P. S.	1	Price on application
P-0507	Supply Tube ¼"—I. P. S.	6, 7, 7½	Price on application
0508	Locknut	1, 5, 6, 6½, 7, 8½, 9, 10, 65	.15
0509	Union Nut	1, 4, 4½, 5, 6, 6½, 7, 7½, 8, 8½, 9, 10, 48, 65	.20
0510	Tail Piece	5, 8½, 9, 65	.25
0511	Shank	1, 6, 7, 10	.65
0512	Long Cast Float Arm	1, 4	.25
P-0513	Rubber Shank Gasket	7½	.10
0514	Long Cast Float Arm	9	.25
0515	Short Cast Float Arm	6, 7	.15
0516	Float Arm	9½	.15
P-0517	¼x1½-inch Brass Nipple	7½	.15
P-0518	Refill Tube	6, 7, 7½, 10	Per inch .02
0520	Bent Tail Piece	4	.50
0521	Bracket Seat	4, 9½	.80
0522	Combination Seat and Shank	5, 6½, 9, 65	1.00
0523	Body	9, 9½	.60
P-0524	Supply Tube ¼" I. P. S. x 6¼" long	6, 7, 7½, 10	Price on application
P-0525	Discharge Tube ½"—20 Ga. x 6" long	4½, 6, 7, 7½, 10	Price on application
0526	Body Seat	6, 7, 7½	.30
0527	Shank	7½	.45
0528	Body	6, 6½, 65	.75
0529	Body	7, 7½	.85
0530	Eccentric	6, 6½, 7, 7½, 65	.10
0531	Plunger Casting	6, 6½, 7, 7½, 10, 65	.50
P-0533	Special Screw	1, 4, 4½, 5, 6, 7, 7½, 10, 48, 65	.02
P-0534	Plunger Disc Holder	All Ball Cocks	.08
P-0536	Rubber Seat Disc	All Ball Cocks	$0.02
P-0537	Fibre Gasket	1, 4, 4½, 5, 9, 48	.04
P-0538	Rubber Cone Shaped Gasket	1, 6, 7, 10	.04
P-0539	Flat Rubber Shank Gasket	5, 6½, 8½, 9, 65	.05
P-0540	Leather Union Gasket	4, 4½, 5, 8, 8½, 9, 9½, 48, 65	.02
P-0544	Rubber Union Gasket	1, 6, 6½, 7, 7½, 10	.02
P-0546	Old Style Plunger Body	0900	.50
P-0547	Old Style Plunger Head	0900	.20
P-0548	Plunger Leather	1, 4, 4½, 5, 6, 6½, 7, 7½, 9, 9½, 10, ½" No. 14, 48, 65	.02
P-0549	Cup Leather	0900	.02
0553	Locknut	7½	.20
P-0562	Float Rod	6, 6½, 7, 7½, 10	Per inch .02
0563	Thumb Screw	4½, 6, 6½, 9, 9½, 48, 65	.05
0565	Elbow Seat	4½	.70
0566	Float Arm	4½	.20
0567	Eccentric	4½	.10
0568	Body	4½	.70
0570	Cast Float Arm	6½	.25
0572	Offset Shank	6, 7	1.00
0575	Long Cast Float Arm	5	.25
0576	Cast Float Arm	5, 65	.15
0577	Cast Float Arm	1, 4, 5, 48, Special Assemblies	.15
0578-1	Long Shank	1	.75
0578-5	Long Seat and Shank	5	.75
0579	Cast Float Arm	5, Special Assemblies	.15
0580	Body	8	.80
0581	Body Seat Casting	8	.50
0582	Plunger Casting	8, 8½	.40
0583	Short Cast Float Arm	8	.15
0584	Bent Tail Piece	4½, 8, 48	.50
0591	Straight Body Seat	48	.50
0595	Body	8½	.50
0596	Combination Seat and Shank	8½	1.00
0598	Cast Float Arm	8½	.15
0599	Body	10	1.50
0600	Eccentric	10	.32
0601	Cast Brass Lever	10	.25

Flushing Levers and Parts



No. 23
Single Acting

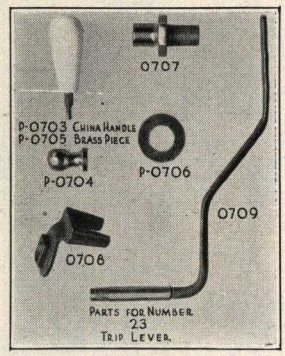
No. 23—Single Acting Flushing Lever with China Handle marked "Press". All parts made of heavy cast brass.

No. 23-C—With Chrome Plated all Metal Round Handle.



No. 36-R
Double Acting

No. 36-R—Double Acting Flushing Lever with Round Type All China One-Piece Handle and Flange. All parts cast brass.



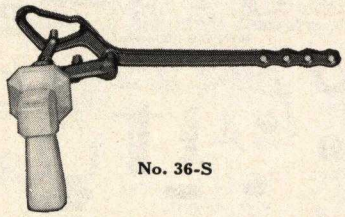
No. 23



No. 27
Rotary Acting

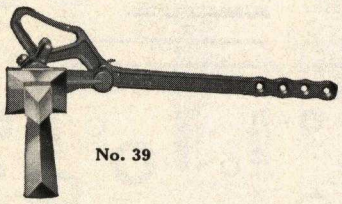
No. 27—Flushing Lever for low tank. Nickel Plated Cast Brass Outside Casting, two-inch china handle, cast brass working parts. Rotary Acting.

No. 26—Double Acting Type.



No. 36-S

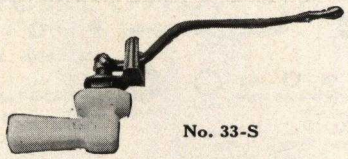
No. 36-S—Double Acting Flushing Lever with Colonial Type All China One-Piece Handle. All parts cast brass.



No. 39

No. 39—Double Acting Flushing Lever with Chrome Plated Art Line Metal Handle and Flange.

No. 29—Same as above but in Single Acting Type.



No. 33-S

No. 33-S—Single Acting Flushing Lever with Colonial Type China Handle. All Parts made of heavy cast brass.

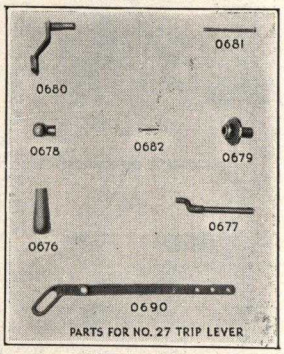
No. 33-R—With Round All China One-piece Handle.



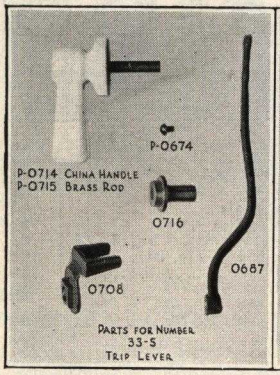
No. 37-R
Rotary Acting

No. 37-R—Rotary Acting Flushing Lever with Round Type All China One-Piece Handle and Flange. All parts cast brass.

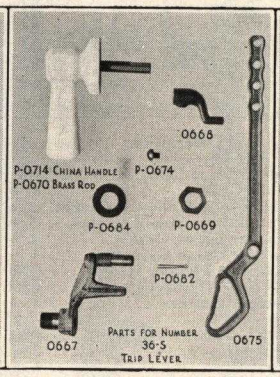
No. 37-S—With Colonial Type All China One-Piece Handle.



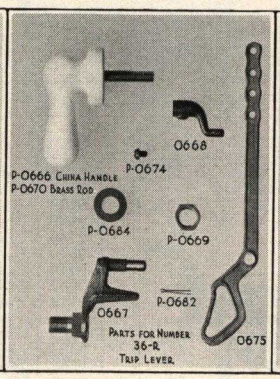
No. 27



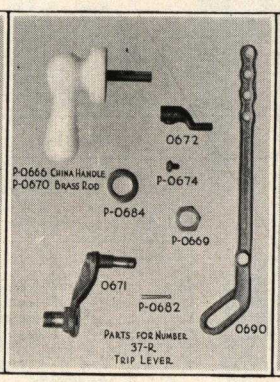
No. 33-S



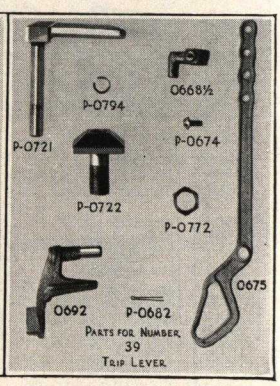
No. 36-S



No. 36-R



No. 37-R

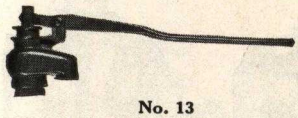


No. 39

No.	Description	Used In Nos.	List
P-0666	All China Handle	36-R, 37-R	$0.40
0667	Inside Casting	36-R	.25
0668	Eccentric, Cast Brass	36-R	.15
0668½	Eccentric, Cast Brass	39	.15
P-0669	Locknut for inside casting, ¾" hex x ½—24 Thread x ¼" Thick	36, 37	.20
P-0670	Brass Rod, 5/16" x 2 5/16"	36, 37	.30
0671	Inside Casting	37	.25
0672	Cast Eccentric	37	.15
P-0674	Round Brass Screw, 10-24 x ¼" long	36, 37	.20
0675	Cast Lift Arm	26, 36, 37	.30
P-0676	China Handle	26, 27	.20
0677	Eccentric	27	.30
P-0678	Handle Ball	26, 27	.20
0679	Outside Nut	26, 27	.40
0680	Inside Casting	27	.20
P-0681	N. P. Steel Screw, 10-24 x 2¼"	26, 27	.08
P-0682	Brass Cotter Pin	26, 27, 36, 37, 39	.02
P-0684	Washer 1" O. D. x 17/32", I. D. x 1/16" Thick	36, 37	.10

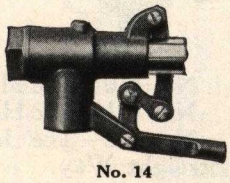
No.	Description	Used In Nos.	List
0687	Lift Arm	29, 33	.35
0690	Lift Arm	27, 37	.30
0691	Eccentric	26	.25
0692	Inside Casting	26	.25
P-0703	China Handle marked "Press"	23	.25
P-0704	Handle Ball	23	.25
P-0705	Knurled piece to hold Handle	23	.10
P-0706	Brass Washer, 1¼" O. D. x 5/8" I. D. x .065	23	.25
0707	Hexagon Casting	23	.40
0708	Inside Casting	23, 29, 33	.25
0709	Trip Lever Casting	23	.70
P-0714	Colonial Type Square China Handle	33, 36-S, 39-S	.45
P-0715	Rod	33	.30
0716	Thimble Casting	33	.35
P-0717	Brass Cotter Pin	23, 29, 33	.02
P-0721	Art Chrome Lever with Rod	29, 39	1.00
P-0722	Art Chrome Escutcheon and Nipple	29, 39	1.00
P-0772	Hexagon Nut for Thimble	29, 39	.20
P-0794	Split Brass Ring	29, 39	.05

Stock Watering Valves



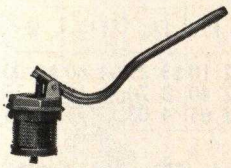
No. 13

No. 13—With cast brass body tapped for ¼, ⅜ or ½-inch iron pipe sizes. All parts made of heavy cast brass.



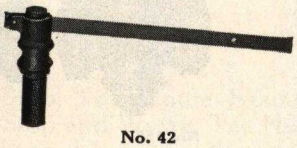
No. 14

No. 14—With float arm tapped female for ¼-20 thread. All parts heavy cast brass. Made in ⅜-, ½- and ¾-inch sizes.



No. 15

No. 15 — Suitable for chicken watering tanks. Body has strainer attachment. Made of heavy cast brass.



No. 42

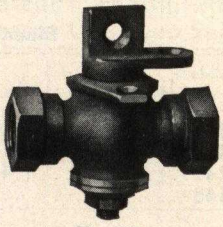
No. 42—With steel float rod, any length, adjustable seat. Made of heavy cast brass. Threaded for I.P.

Extra Heavy Gas Service Stops



No. 211

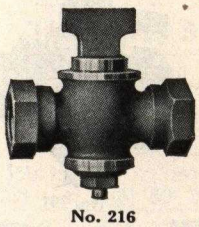
No. 211 — Flat Head, Straight Way.



No. 213

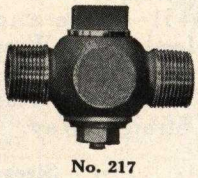
No. 213 — Lock Wing, Long Pattern, Round Way. ¾-inch size only carried in stock.

Size, inches	½	¾	1	1¼	1½	2
No. 211	$1.30	$1.80	$3.00	$4.50	$6.50	$11.20



No. 216

No. 216 — Tee Handle, Long Pattern, Round Way. ¾-inch size only carried in stock.



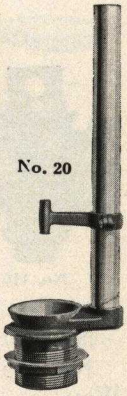
No. 217

No. 217 — Corporation Gas Cock, Round Way. ¾, 1, 1¼-inch only carried in stock.

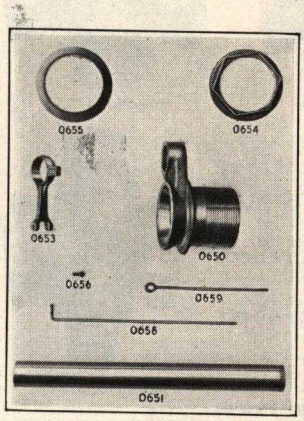
No. 20 Rockford Flush Valve

No. 20 — Rockford Flush Valve for 2½-inch ball, with cast locknut, Guide, and 1x11-inch overflow tube, upper and lower lift wires, and 2-inch beveled rubber gasket.

No. 21, made for 2¾-inch ball with 1⅛-inch overflow tube.



No. 20



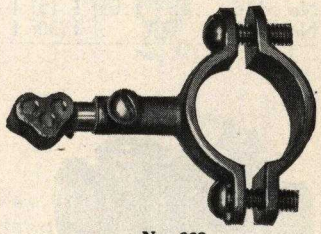
Parts for No. 20 Flush Valve

No.	Description	List
0650	Body	$2.00
0651	Overflow Tube 1x10½ inches	.60
0652	Overflow Tube 1⅛x11 inches	1.00
0653	U. Guide	.15
0654	Locknut	.08
0655	Cone Gasket	.07
0656	Guide Screw	.06
0658	Upper Lift Wire	.08
0659	Lower Lift Wire	.05



No. 22

No. 22—Valve Seat. For high tank, furnished 1¼ and 1½-inch sizes. Coupling Nut and Locknut White Nickel Plated. Leather Coupling Nut Gasket and Locknut Gasket furnished.

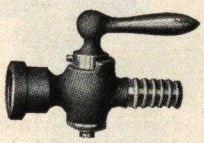


No. 662

No. 662—Three-piece adjustable guide. Made of heavy cast brass for 1, and 1⅛-inch tubing.

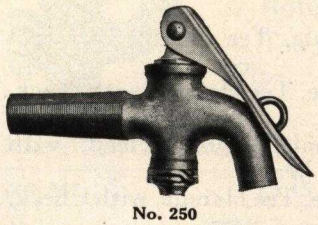
Gas Hose Stops

No. 219—Round Way. Made in ⅜, ½ and ¾-inch sizes.

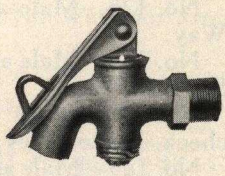


No. 219

Lock Lever Ground Key Barrel Faucets



No. 250



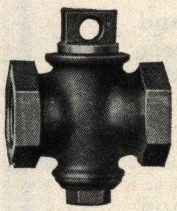
No. 251

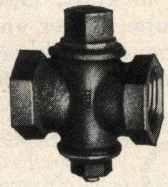
No. 250—Lock lever ground key barrel faucet with Fine Thread for wood. Sizes ⅜, ½, ⅝ and ¾-inch.

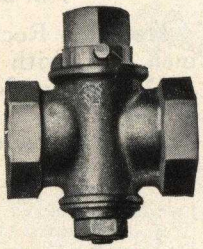
No. 251—Barrel Faucet for Iron Pipe. Sizes ½, ⅝, ¾ and 1-inch.

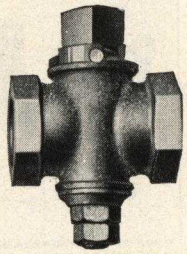
Made in Rough Brass, Polished Brass, White Nickel Plated or Polished Nickel Plated.

Rough Brass Standard Gas Service Stops


No. 110


No. 115

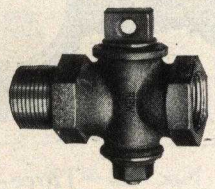

No. 116

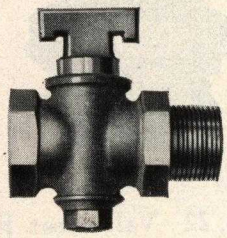

No. 117

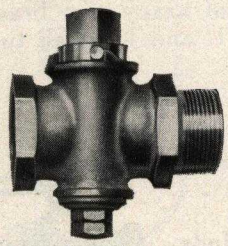
No. 110—Flat Head, Straight Way.
No. 115—Square Head, Straight Way.
No. 116—Square Head, with check, Straight Way.
No. 117—Square Head, with check, Boston Key, Straight Way.

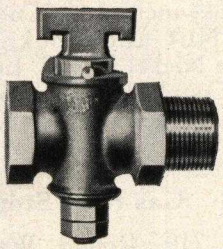
Sizes and List Prices

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2
Nos. 110-115	$ .90	$1.00	$1.10	$1.30	$2.10	$3.25	$4.60	$8.00
No. 116	1.05	1.15	1.30	1.55	2.40	3.70	5.10	8.75
No. 117	.....	1.30	1.45	1.75	2.65	4.05	5.55	9.35


No. 120


No. 126

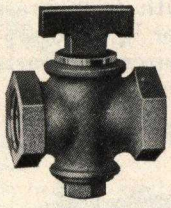

No. 128


No. 129

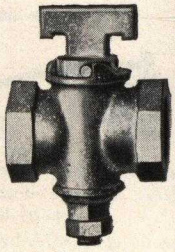
No. 120—Male and Female, Flat Head, Straight Way.
No. 124—Male and Female, Square Head, Straight Way.
No. 125—Male and Female, Square Head, with check, Straight Way.
No. 126—Male and Female, Tee Handle, Straight Way.
No. 127—Male and Female, Tee Handle, with check, Straight Way.
No. 128—Male and Female, Square Head, with check, Boston Key, Straight Way.
No. 129—Male and Female, Tee Handle, with Check, Boston Key, Straight Way.

Sizes and List Prices

Size.....Inches	½	¾	1	1¼	1½	2
Nos. 120-124-126	$1.30	$1.55	$2.40	$3.65	$5.45	$9.15
Nos. 125-127	1.50	1.80	2.70	4.10	5.95	9.90
Nos. 128-129	1.65	2.00	2.95	4.45	6.40	10.50


No. 130

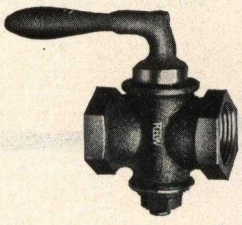

No. 131


No. 132

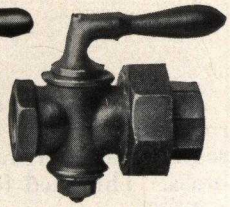
No. 130—Tee Handle, Straight Way.
No. 131—Tee Handle, with check, Straight Way.
No. 132—Tee Handle, with check, Boston Key, Straight Way.

Sizes and List Prices

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2
No. 130	$ .90	$1.00	$1.10	$1.30	$2.10	$3.25	$4.60	$8.00
No. 131	1.05	1.15	1.30	1.55	2.40	3.70	5.10	8.75
No. 132	.....	1.30	1.45	1.75	2.65	4.05	5.55	9.35


No. 140

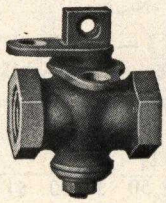

No. 141

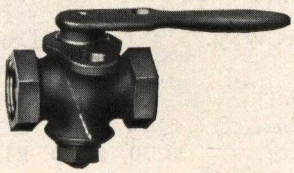

No. 148

No. 140—Lever Handle, Straight Way.
No. 141—Lever Handle, with check, Straight Way.
No. 145—Lever Handle, with detachable iron handles and check, Straight Way.
No. 148—Lever Handle, Union Gas Cock.

Sizes and List Prices

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2
No. 140	$ .90	$1.00	$1.10	$1.30	$2.10	$3.25	$4.60	$8.00
No. 141	1.05	1.15	1.30	1.55	2.40	3.70	5.10	8.75
No. 145	.....	1.45	1.60	1.85	.....	.....	.....	.....
No. 148	.....	.....	.....	.....	.....	.....	.....	.....


No. 150


No. 155

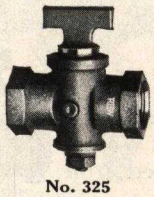

No. 151

No. 150—Flat Head, Lock Wing, Straight Way.
No. 151—Male and Female, Flat Head, Lock Wing, Straight Way.
No. 155—Lever Handle, Lock Wing, Straight Way.

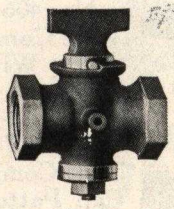
Sizes and List Prices

Size.....Inches	⅜	½	¾	1	1¼	1½	2
No. 150	$1.30	$1.40	$1.60	$2.50	$3.85	$5.35	$9.00
No. 151	1.50	1.60	1.85	2.80	4.25	6.20	10.15
No. 155	1.30	1.40	1.60	.....	.....	.....	.....

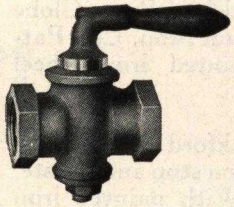
Rough Brass Stop Cocks and Stop and Waste Cocks—For Iron Pipe


No. 325

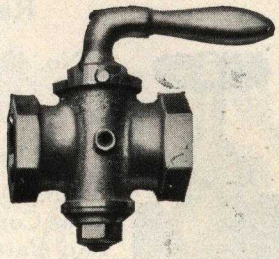
No. 325 — Stop, Tee Handle, Straight Way.


No. 326

No. 326 — Stop and Waste, Tee Handle, Straight Way.


No. 327

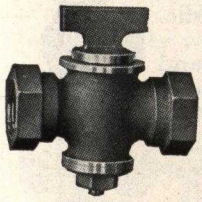
No. 327 — Stop, Lever Handle, Straight Way.


No. 328

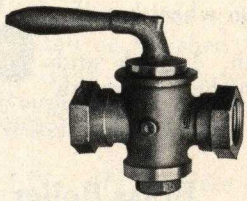
No. 328 — Stop and Waste, Lever Handle, Straight Way.

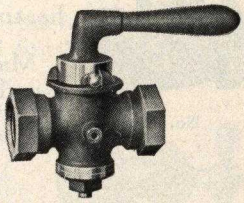
Sizes and List Prices

Size.....Inches	¼	⅜	½	⅝	¾	1	1¼	1½	2
Nos. 325-327	$1.65	$1.70	$1.75	$2.45	$3.00	$4.40	$7.45	$12.45	$21.50
Nos. 326-328	.....	1.75	1.80	2.50	3.05	4.50	7.60	12.70	22.00


No. 329

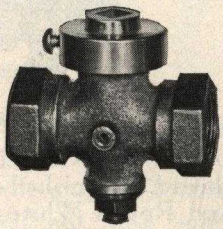

No. 330


No. 331


No. 332

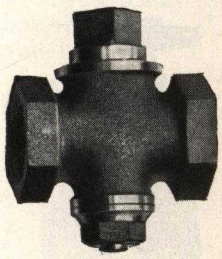
No. 329—Stop, Tee Handle, Round Way.
No. 330—Stop and Waste, Tee Handle, Round Way.
No. 331—Stop, Lever Handle, Round Way.
No. 332—Stop and Waste, Lever Handle, Round Way.
No. 333—Stop, Socket Head, Reversible Iron Handle, Straight Way.
No. 334—Stop and Waste, Socket Head, Reversible Iron Handle, Straight Way.
No. 337—Patent Cap Stop with cap cast integral with plug.
No. 338—Patent Cap Stop and Waste with cap cast integral with plug.


No. 334


No. 338

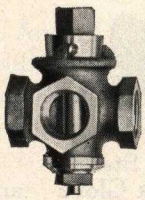
Sizes and List Prices

Size.....Inches	⅜	½	⅝	¾	1	1¼	1½	2
Nos. 329-331	$2.10	$2.20	$3.00	$3.85	$6.15	$10.05	$16.45	$28.50
Nos. 330-332	2.15	2.25	3.05	3.90	6.25	10.20	16.70	29.00
Nos. 333-337	.....	1.75	.....	3.00	.....	.....	.....	.....
Nos. 334-338	.....	1.80	.....	3.05	.....	.....	.....	.....


No. 350

Standard Steam Cocks

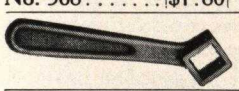
No. 350—Square Head.
No. 352—Flat Head.


No. 368

Three Way Steam Cocks

No. 368—Square Head, with check, extra large plug, full openings.

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2
Nos. 350-352	.....	$1.00	$1.25	$1.70	$2.35	$3.70	$4.85	$7.30
No. 368	$1.80	2.10	2.50	3.00	3.75	5.75	7.15	10.00



Malleable Iron Wrenches for Square Head Steam Cocks

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2
Number	1	2	3	4	5	6	7	8
List Price	$0.07	$0.08	$0.09	$0.15	$0.25	$0.35	$0.45	$0.80

Inverted Key Brass Curb Cocks

No. 340—Round Way, Rockford Pattern, Female Thread. ¾-inch size only. Price on application.

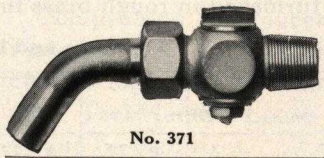

No. 340


No. 342

Rough Brass Hydrant Cocks

Tee Handle, Oval Way, for Iron Pipe.

Size.....Inches	½	⅝	¾	1	1¼
No. 342	$2.15	$3.05	$3.75	$5.40	$8.65


No. 371

Corporation Stops for Mueller Machine

Bent Coupling, Screw Plug, Flat Sides.

Size.....Inches	½	⅝	¾	1
No. 371	$1.60	$2.25	$2.85	$4.50

Red Metal Compression Stops and Stops and Wastes



No. 402

No. 402—Rockford Brass Globe Type Compression Stop, Cap Pattern. With painted iron wheel handle.

No. 403—Rockford Brass Globe Type Compression stop and Waste, Cap Pattern. With painted iron wheel handle.

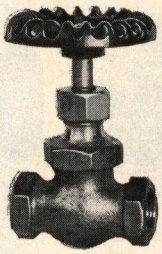


No. 403

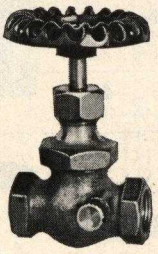
No. 404—Rockford Brass Globe Type Compression Stop, Stuffing Nut Pattern. With non-heating painted iron wheel handle.

No. 405—Rockford Brass Globe Type Compression Stop and Waste, Stuffing Nut Pattern. With non-heating painted iron wheel handle.

Made in ½-inch, ¾-inch and 1-inch sizes. Furnished in rough brass finish.



No. 404



No. 405

No. 406—Rockford Brass Angle Type Compression Stop, Cap Pattern. With painted iron wheel handle.

No. 407—Rockford Brass Angle Type Compression Stop and Waste, Cap Pattern. With painted iron wheel handle.



No. 408

No. 408—Rockford Brass Angle Type Compression Stop, Stuffing Nut Pattern. With non-heating painted iron wheel handle.

No. 409—Rockford Brass Angle Type Compression Stop and Waste, Stuffing Nut Pattern. With non-heating painted iron wheel handle.

Made in ½-inch, ¾-inch and 1-inch sizes. Furnished in rough brass finish.



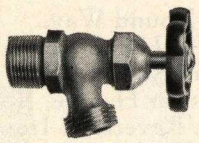
No. 409

Brass Boiler Drain Faucets



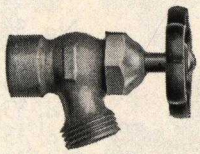
No. 410

No. 410—Wheel handle, male thread. Furnished in Rough Brass and Rough White Nickel Plated. Sizes ½ and ¾-inch. Also furnished with female thread either size.



No. 411

No. 411—Wheel handle, male thread, hexagon wrench grip at top of thread. Furnished in Rough Brass, Rough White Nickel Plate. Sizes, ½-inch and ¾-inch.



No. 412

No. 412—Wheel handle, female thread, furnished in Rough Brass, Rough White Nickel Plate. Sizes, ½-inch and ¾-inch.

Brass Globe, Angle and Gate Valves



No. 414

No. 414 — Standard Hard Seat Globe Valve.



No. 415

No. 415 — Standard Hard Seat Angle Valve.



No. 416

No. 416 — Standard Soft Seat Globe Valve.



No. 417

No. 417 — Standard Soft Seat Angle Valve.



No. 419

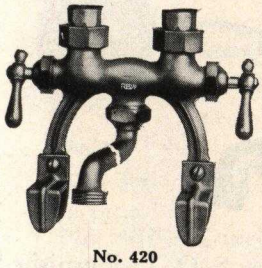
No. 419 — Standard Gate Valve.

The above Rockford Brass Angle, Globe and Gate Valves are carefully made from high grade material, are accurately machined and are furnished in rough brass finish.

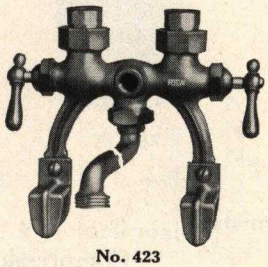
Sizes and List Prices

Size.....Inches	¼	⅜	½	¾	1	1¼	1½	2
Nos. 414, 415, 416, 417.....	$ .72	$ .77	$1.00	$1.26	$1.80	$2.52	$3.50	$5.30
No. 419.....	1.45	1.45	1.65	2.05	2.80	3.70	5.00	7.30

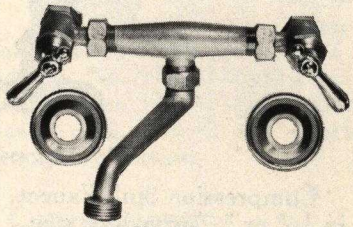
Laundry Tray Faucets



No. 420



No. 423



No. 422

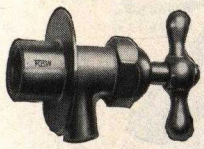
No. 420—Swinging Spout Laundry Tray Faucet for two part tray. Furnished with brackets and set screws, cast unions with hexagon tail pieces. White Nickel Plated.

No. 421—Swinging Spout Laundry Tray Faucet, same as No. 420, except with extra long spout for three part tray.

No. 423—Swinging Spout Laundry Tray Faucet, same as No. 420, except with ⅜-inch pipe tapping in front for city water supply.

No. 422—California Pattern Laundry Tray Faucet with adjustable slip joint extension, brass flanges, less unions. Can be installed from a minimum of 7½ inches center to center to a maximum of 10 inches center to center. Swinging spout is on a swivel joint permitting it to swing in a complete circle. Thus, when installed on drop supply pipes, one faucet can take care of four tubs.

Furnished for ½-inch iron pipe size in White Nickel Plated or Polished Nickel Plated finish.



No. 470

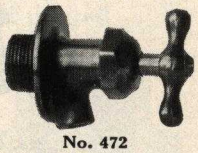
Heavy Pattern Compression Laundry Tray Faucets with solid flange. Made of Red Metal. Furnished in Rough Brass, Rough White Nickel Plated Polished Brass and Polished Nickel Plated finishes. For ½-inch iron pipe size.

No. 470 — Female Flange, Plain Spout.

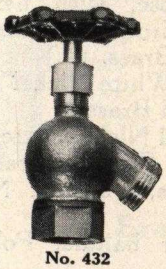
No. 471 — Female Flange, Hose Spout.

No. 472 — Male Flange, Plain Spout.

No. 473 — Male Flange, Hose Spout.



No. 472



No. 432

Garden Valves

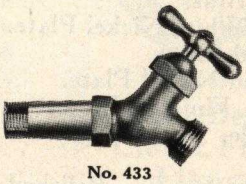


No. 432½

No. 432—Rough Brass Bent Nose Garden Valve with hose spout and wheel handle. Sizes: ½", ¾", 1" and 1" x ¾".

No. 432½ — Rough Brass Straight Nose Garden Valve with hose spout and wheel handle. Sizes: ½" and ¾" iron pipe size.

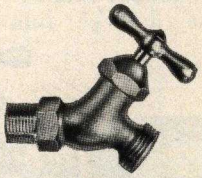
Angle Faucets



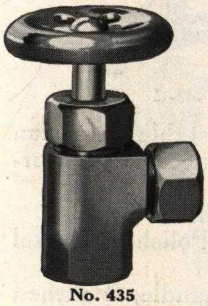
No. 433

No. 433 — Rough Brass Angle Faucet S. O. T., male thread. With Tee handle and angle hose connection. Will not kink hose. Made in ½-inch iron pipe size.

No. 436 — Rough Brass Angle Faucet with hexagon shoulder, male, for iron pipe. With Tee handle and angle hose connection. Will not kink hose. Made in ½-inch size.



No. 436



No. 435

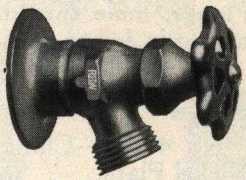
Slip Joint Angle Stop

No. 435—Slip Joint Angle Stop made to slip ½-inch tube and ½-inch iron pipe thread. Polished N. P. finish. Wheel handle.

Sill Faucets



No. 450



No. 455

Compression Sill Faucets. Cast Brass White Nickel Plated all over with Combination Wheel handle to be used as loose key by removing screw. Also furnished with Tee Handle Loose Key if desired. Made in ½ and ¾-inch sizes.

No. 450—Heavy Pattern. No. 455—Junior Pattern.

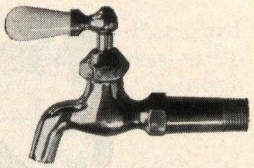
Angle Sill Faucet

No. 453—Compression Angle Sill Faucet with 45-degree angle hose connection and with combination Loose Wheel Handle to be used as loose key by removing screw. Made in Rough White Nickel Plated finish and in ½-inch size only.



No. 453

Compression Sink Faucets



No. 430-G

Compression Sink Faucet, Plain, S. O. T. Furnished in ½" or ¾" iron pipe size.

No. 430-A—Tee handle, Rough Brass.

No. 430-B—Tee handle, Rough White Nickel Plate.

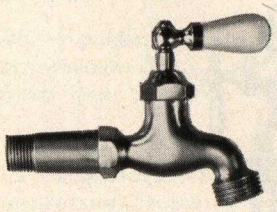
No. 430-C—Tee handle, Finished Brass.

No. 430-D—Tee handle, Polished Nickel Plate.

No. 430-E—Metal Lever handle, Finished Brass.

No. 430-F—Metal Lever handle, Polished Nickel Plate.

No. 430-G—China Index Lever handle, Polished Nickel Plate.



No. 431-G

Compression Sink Faucet, Hose, S. O. T. Furnished in ½" or ¾" iron pipe size.

No. 431-A—Tee handle, Rough Brass.

No. 431-B—Tee handle, Rough White Nickel Plate.

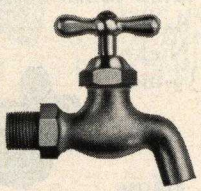
No. 431-C—Tee handle, Finished Brass.

No. 431-D—Tee handle, Polished Nickel Plate.

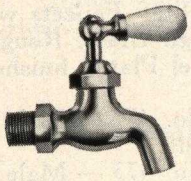
No. 431-E—Metal Lever handle, Finished Brass.

No. 431-F—Metal Lever handle, Polished Nickel Plate.

No. 431-G—China Index Lever handle, Polished Nickel Plate.



No. 437-A



No. 437-G

Compression Sink Faucet, Plain, with hexagon shoulder. Furnished in ½" or ¾" iron pipe size.

No. 437-A—Tee handle, Rough Brass.

No. 437-B—Tee handle, Rough White Nickel Plate.

No. 437-C—Tee handle, Finished Brass.

No. 437-D—Tee handle, Polished Nickel Plate.

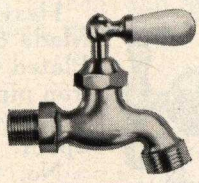
No. 437-E—Metal Lever handle, Finished Brass.

No. 437-F—Metal Lever handle, Polished Nickel Plate.

No. 437-G—China Index Lever handle, Polished Nickel Plate.



No. 438-A



No. 438-G

Compression Sink Faucet, Hose, with hexagon shoulder. Furnished in ½" or ¾" iron pipe size.

No. 438-A—Tee handle, Rough Brass.

No. 438-B—Tee handle, Rough White Nickel Plate.

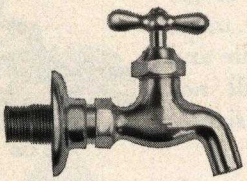
No. 438-C—Tee handle, Finished Brass.

No. 438-D—Tee handle, Polished Nickel Plate.

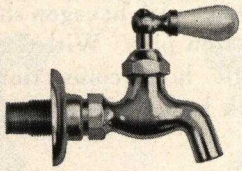
No. 438-E—Metal Lever handle, Finished Brass.

No. 438-F—Metal Lever handle, Polished Nickel Plate.

No. 438-G—China Index Lever handle, Polished Nickel Plate.



No. 441-D



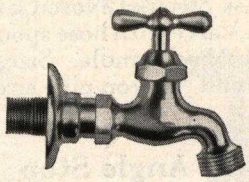
No. 441-G

Compression Sink Faucet with Adjustable Extension Flange, male thread. No set screw necessary. Furnished in ½" or ¾" iron pipe size.

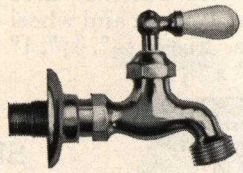
No. 441-D—Tee handle, Polished Nickel Plate.

No. 441-F—Metal Lever handle, Polished Nickel Plate.

No. 441-G—China Index Lever handle, Polished Nickel Plate.



No. 442-D



No. 442-G

Compression Sink Faucet with Adjustable Extension Flange, male thread. No set screw necessary. Furnished in ½" or ¾" iron pipe size.

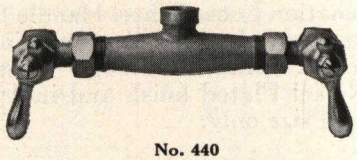
No. 442-D—Tee handle, Polished Nickel Plate.

No. 442-F—Metal Lever handle, Polished Nickel Plate.

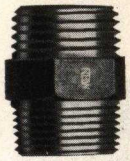
No. 442-G—China Index Lever handle, Polished Nickel Plate.

Compression Double Shower Valve

Compression Double Shower Valve with slip joint adjustment. Minimum roughing-in 7½ inches center to center. Can be extended to 10 inches center to center. Furnished in ½-inch or ¾-inch iron pipe size, in White Nickel Plated Finish.



No. 440



No. 480

Cast Brass Hose Nipples



No. 482

No. 480—¾-inch Male Hose thread x ¾-inch male iron pipe.

No. 481—¾-inch Male Hose thread x ½-inch male iron pipe.

No. 482—¾-inch Male Hose thread x ¾-inch female iron pipe.

No. 483—¾-inch Male Hose thread x ½-inch female iron pipe.



No. 488

Bath Faucet Coupling

No. 488—With Union Nut and Bent Tail Piece. Threaded for ½-inch iron pipe.

Brass Soldering Nipples

Standard	Extra Heavy
No. 510—Yellow Metal Male	No. 520
No. 512—Yellow Metal Female	No. 522
No. 511—Red Metal Male	No. 521
No. 513—Red Metal Female	No. 523



No. 510



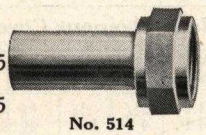
No. 512

Size Inches	Price Net Each	Size Inches	Price Net Each
¼	$0.30	1	$0.70
⅜	.30	1¼	.90
½	.35	1½	1.25
¾	.50	2	1.75

Brass Soldering Unions

No. 514—Yellow Metal.
No. 515—Red Metal.

Size, inches	¼	⅜	½	¾
Price, each	$0.40	$0.40	$0.50	$0.65
Size, inches	1	1¼	1½	2
Price, each	$0.85	$1.10	$1.25	$1.75



No. 514

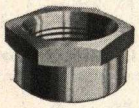
Brass Bushings



No. 540



No. 550



No. 560

No. 540—Outside Hexagon, Male

Sizes for L. P.: 1¼, 1½, 2 and 4-inch.

Sizes for Tubing: 1¼x1¼, 1¼x1⅜, 1½x1¼, 1½x1⅜, and 1½x1½ inches.

No. 550—Faced Sweet

Sizes for L. P.: 1¼ and 1½ inches.

Sizes for Tubing: 1¼x1¼, 1¼x1⅜, 1½x1¼, 1½x1⅜, and 1½x1½ inches.

No. 560—Outside Hexagon, Female

Sizes for L. P.: 1½-inch.

Sizes for Tubing: 1½x1¼, 1½x1⅜, and 1½x1½ inches.

Nickel Plated Slip Nuts



No. 575

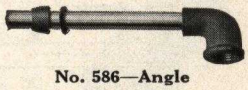
Cast Brass.	Heavy Pattern
No. 575—1¼x1¼ inches	No. 578—1½x1⅜ inches
No. 576—1¼x1⅜ inches	No. 579—1½x1½ inches
No. 577—1½x1¼ inches	No. 580—2 x2 inches

Prices upon application

Basin Connections



No. 585—Straight



No. 586—Angle

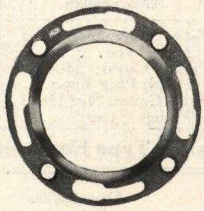
No. 585—Regular Pattern, Straight No. 586 Regular Pattern, Angle.

No. 585½—Light Pattern, Straight No. 586½ Light Pattern, Angle. Furnished with rubber gasket and brass ring.

No. 585, 585½, straight; tapped ⅜-inch I. P., length 5 inches.

No. 586, 586½, angle; tapped ⅜-inch I. P., length 5¼ inches from center of elbow to end.

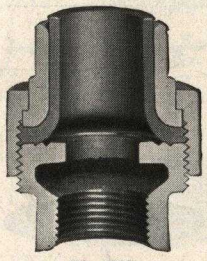
Special lengths furnished if desired.



No. 587

Cast Brass Closet Floor Flange

No. 587—With slot arranged to permit insertion of head of closet bolt after installation.



No. 590

Cast Brass Lead and Iron Union

No. 590—Made in ½-inch and ¾-inch sizes only.

Closet Spud Reducer

No. 595—2x1¼ in. No. 596—2x1½ in.

Prices upon application.



No. 595

Trap Screw With Solder Rings



No. 630



No. 631



No. 632

No. 630—Two Piece Trap Screw with Solder Ring. Countersunk Head. Size, ¾ and 1-inch.

No. 631—Three Piece Trap Screw with Solder Ring, locknut and countersunk plug. Size ¾ and 1-inch.

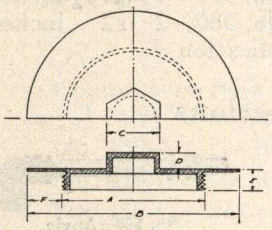
No. 632—Two Piece Trap Screw with Solder Ring and plug with raised square head. Sizes ¾ and 1-inch.

Cast Brass Drum Trap and Cleanout Covers

All drum trap covers furnished in rough brass, machine finish, polished nickel plated and chromium plated.

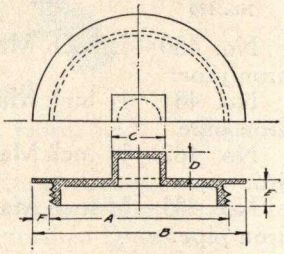


No. 600





No. 601



Flange Type Hexagonal Head Drum Trap Covers

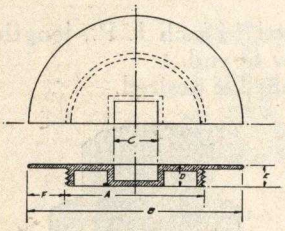
No.	Description	A In.	B In.	C In.	D In.	E In.	F In.	Wt. Lbs.
600	Flange Type, Hex. Head	3 I.P.	5	1¼	⅜	½	⅞	.63
602	Flange Type, Hex. Head	3 13/16 I.P. 14 Thd.	5⅝	1¼	½	½	1	1.00
603	Flange Type, Hex. Head	3 I.P.	4⅝	1¼	⅜	7/16	11/16	.55
604	Flange Type, Hex. Head	3 I.P.	4¾	1¼	⅜	½	¾	1.00
607	Flange Type, Hex. Head	3⅞ 14 Thd.	5⅝	1¼	½	⅝	⅞	1.19

Flange Type Square Head Drum Trap Covers

No.	Description	A	B	C	D	E	F	Wt. Lbs.
601	Flange Type, Square Head	3 I.P.	5	⅞	½	½	13/16	.72
610	Flange Type, Square Head	3 11/16 16 Thd.	5¼	⅞	½	⅞	¾	.88
610-R	Ring for No. 610 Cover	3 11/16 16 Thd.						.18
611-R	Ring for No. 601 Cover	3 I.P.						.50

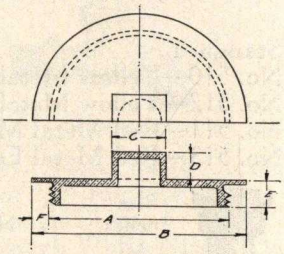


No. 606





No. 610

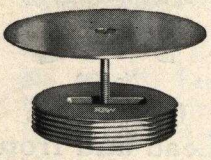


Flange Type Counter Sunk Drum Trap Covers

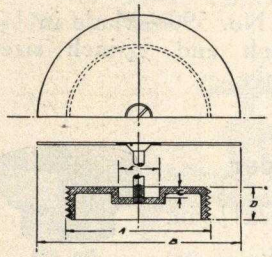
No.	Description	A	B	C	D	E	F	Wt. Lbs.
606	Flange Type, Countersunk	3 I.P., Str.	4⅝	15/16	7/16	7/16	⅝	.61
650	Flange Type, Countersunk with Stop	6 Spec.	6½	1	1	5/16	5/16	.....
651	Flange Type, Countersunk with Stop	6¼ Spec.	6¾	1	1	5/16	5/16	.....

Extension Drum Trap Covers

No.	Description	A	B	C	D	E	F	G	Wt. Lbs.
620	False Cover, Slot Head Plug Type	3 I.P.	4¾	7/16	¾	1⅞	.....	.....	.578
621	False Cover, Socket Head, Plug Type	3 I.P.	5⅜	¼	½	15/16	.....	.....	.50
622	False Cover, Slot Head Flange Type	3 13/16 14 Thd.	4¼	4¾	½	¼	1⅜	5/16	.87

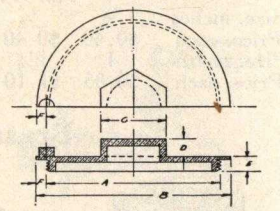


No. 621





No. 638



Flange Type Hexagonal Head Cleanout Covers With Stop

No.	Description	A	B	C	D	E	F	Wt. Lbs.
638-A	Flange Type, Hex. Head with Stop, Spec. Thds	3 13/16	4¼	1⅜	⅜	5/16	3/16	.94
647	Flange Type, Hex. Head with Stop, Spec. Thds	4 13/16	5 7/16	1¾	7/16	⅜	5/16	1.72
648	Flange Type, Hex. Head with Stop, Spec. Thds	5 15/16	6½	1⅝	11/16	⅜	5/16	2.44
649	Flange Type, Hex. Head with Stop, Spec. Thds	6¼	6⅞	1¾	⅝	5/16	5/16	3.00

Flange Type Square Head Cleanout Covers

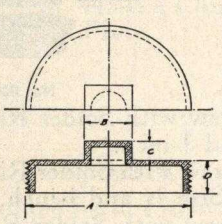
No.	Description	A In.	B In.	C In.	D In.	E In.	F In.	Wt. Lbs.
638	Flange Type, Square Head	1½ I.P.	2¼	¾	⅜	⅜	5/16	.23
638	Flange Type, Square Head	3 I.P.	4	1	½	7/16	⅜	.62
638	Flange Type, Square Head with Stop	3½ I.P.	4¼	1 1/16	7/16	7/16	¼	.79
645	Flange Type 2⅞-inch Special Thread	2⅞	3⅜	1⅛	⅜	⅜	¼	.62
646	Flange Type, 3⅞-inch Special Thread	3⅞	5⅜	15/16	½	2⅛	⅝	2.38

Plug Type Square Head Cleanout Covers

No.	Description	A	B	C	D	Wt. Lbs.
639	Plug Type, Square Head	1½ I.P.	⅞	⅜	½	.21
639	Plug Type, Square Head	3 I.P.	1⅛	7/16	¾	.72
639	Plug Type, Square Head	3½ I.P.	1⅛	½	¼	.78
640	Plug Type, Square Head	1½ I.P.	¾	½	½	.29
640	Plug Type, Square Head	2 I.P.	1	½	½	.39
640	Plug Type, Square Head	2½ I.P.	1¼	⅝	⅝	.84
640	Plug Type, Square Head	3½ I.P.	1¾	¾	¾	1.46
641	Plug Type, Square Head	3½ I.P.	2⅞	15/16	1	1.91
642	Plug Type, Square Head	3½ I.P.	2	1	1	2.44
642	Plug Type, Square Head	2 I.P.	1	¾	15/16	.74
652	Plug Type, Square Head	3 I.P.	1⅛	⅝	7/16	.512
652	Plug Type, Square Head	1½ I.P.	11/16	5/16	7/16	.137

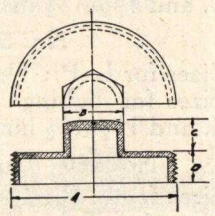


No. 639





No. 643



Plug Type Hexagonal Head Cleanout Covers

No.	Description	A	B	C	D	Wt. Lbs.
639-A	Plug Type, Hexagon Head	3½ I.P.	1⅜	¾	¾	.78
643	Plug Type, Hexagon Head	2 I.P.	1¼	1⅛	¾	.53
643	Plug Type, Hexagon Head	4 I.P.	1⅜	1	¾	1.17

All Weights are Approximate and Subject to Variation in Practice.

Cast Brass Fittings

Made of High Grade Metal. Special Tapping Machines insure proper alignment of threads. Complete Stock. Prompt Shipments.



No. 701 Elbow



No. 702 Street Elbow



No. 705 Tee



No. 707 Coupling



No. 709 Brass Plug



No. 711 Cap



No. 703—45° Elbow



No. 704—45° Street Elbow



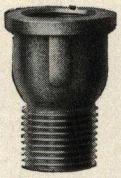
No. 706—Red. Coupling



No. 708 Bushing



No. 710 Brass Union



No. 712 Extension Piece



No. 720—Brass Floor Flange

Rough

Size ... Inches	¼	⅜	½	¾	1	1¼	1½	2
No. 701 90-degree Elbow	$0.15	$0.20	$0.28	$0.40	$0.63	$0.90	$1.20	$2.00
No. 701 Reducing Elbow	.....	.25	.35	.50	.80	1.10	1.50	2.50
No. 702 90-degree St. Elbow	.....	.33	.48	.63	.85	1.50	2.00	3.25
No. 703 45-degree Elbow	.....	.25	.31	.40	.63	.90	1.20	2.00
No. 704 45-degree St. Elbow	.....	.42	.60	.80	1.10	.....	.....	.....
No. 705 Tees	.21	.28	.40	.55	.85	1.25	1.70	2.80
No. 705 Reducing Tees	.....	.35	.50	.70	1.05	1.55	2.10	3.50
No. 706 Reducing Couplings	.....	.20	.28	.40	.60	.90	1.10	1.75
No. 707 Couplings	.13	.17	.25	.37	.55	.80	1.00	1.60
No. 708 Regular Bushings	.....	.12	.15	.22	.35	.50	.70	1.00
No. 708½ Faced Bushings	.12	.15	.19	.27	.44	.62	.87	1.25
No. 709 Plugs	.10	.12	.15	.20	.30	.45	.60	.95
No. 710 Unions	.50	.65	.85	1.15	1.60	2.25	2.70	4.00
No. 711 Caps	.13	.16	.20	.30	.42	.60	.80	1.25
No. 712 Extension Piece	.....	.....	.40	.55	.....	.....	.....	.....

Semi-Finish

No. 701 90-degree Elbow	$0.25	$0.33	$0.42	$0.58	$0.87	$1.23	$1.60	$2.50
No. 701 Reducing Elbow	.....	.40	.53	.73	1.10	1.50	2.00	3.13
No. 702 90-degree St. Elbow	.....	.48	.66	.86	1.15	1.90	2.50	3.88
No. 703 45-degree Elbow	.....	.40	.49	.63	.93	1.30	1.70	2 63
No. 704 45-degree St. Elbow	.....	.57	.78	1.03	1.40	.....	.....	.....
No. 705 Tees	.35	.46	.60	.80	1.18	1.70	2.25	3.50
No. 705 Reducing Tees	.....	.56	.75	1.00	1.45	2.10	2.80	4.38
No. 706 Reducing Couplings	.....	.33	.42	.58	.83	1.23	1.50	2.25
No. 707 Couplings	.21	.27	.36	.50	.73	1.05	1.30	1.98
No. 710 Unions	.55	.75	.95	1.30	1.75	2.50	3.00	4.50
No. 711 Caps	.19	.23	.30	.43	.60	.85	1.15	1.75

Finished

No. 701 90-degree Elbow	$0.35	$0.45	$0.56	$0.75	$1.10	$1.55	$2.00	$3.00
No. 701 Reducing Elbow	.....	.55	.70	.95	1.40	1.90	2.50	3.75
No. 702 90-degree St. Elbow	.....	.63	.83	1.08	1.45	2.30	3.00	4.50
No. 703 45-degree Elbow	.....	.55	.66	.85	1.23	1.70	2.20	3.25
No. 704 45-degree St. Elbow	.....	.72	.95	1.25	1.70	.....	.....	.....
No. 705 Tees	.49	.63	.80	1.05	1.50	2.15	2.80	4.20
No. 705 Reducing Tees	.....	.77	1.00	1.30	1.85	2.65	3.50	5.25
No. 706 Reducing Couplings	.....	.45	.56	.75	1.05	1.55	1.90	2.75
No. 707 Couplings	.28	.36	.46	.63	.90	1.30	1.60	2.35
No. 710 Unions	.60	.85	1.05	1.40	1.90	2.75	3.25	5.00
No. 711 Caps	.25	.31	.40	.55	.77	1.10	1.50	2.25

Nickel Plated

No. 701 90-degree Elbow	$0.42	$0.53	$0.65	$0.87	$1.25	$1.75	$2.25	$3.35
No. 701 Reducing Elbow	.....	.65	.82	1.10	1.60	2.15	2.85	4.15
No. 702 90-degree St. Elbow	.....	.73	.95	1.23	1.65	2.55	3.35	4.90
No. 703 45-degree Elbow	.....	.65	.78	1.00	1.43	1.95	2.55	3.65
No. 704 45-degree St. Elbow	.....	.82	1.07	1.40	1.90	.....	.....	.....
No. 705 Tees	.58	.75	.93	1.22	1.70	2.45	3.15	4.65
No. 705 Reducing Tees	.....	.90	1.15	1.50	2.10	3.00	3.95	5.85
No. 706 Reducing Couplings	.....	.53	.65	.87	1.20	1.75	2.15	3.10
No. 707 Couplings	.33	.42	.53	.72	1.00	1.45	1.80	2.60
No. 710 Unions	.72	1.02	1.26	1.68	2.28	3.30	3.90	6.00
No. 711 Caps	.29	.36	.47	.63	.89	1.25	1.75	2.60

No. 720—Extra Heavy Brass Floor Flange

Size ... Inches	¼	⅜	½	¾	1	1¼	1½	2
Outside Diameter ... Inches	2½	2¾	3	3¼	3¾	4	4½	5
List Price	.....	$0.53	$0.62	$0.75	$1.00	$1.17	$1.50	$1.80

No. 721—Standard Brass Floor Flange

Size ... Inches	¼	⅜	½	¾	1	1¼	1½	2
Outside Diameter ... Inches	.....	.....	2	2⅜	1¾	3½	3⅝	4½
List Price	.....	$0.53	$0.62	$0.75	$1.00	$1.17	$1.50	$1.80

All fittings reducing more than two sizes add 25 per cent to above lists.
Fittings tapped Right and Left hand add 25 per cent to above lists.

SANITARY-DASH CORPORATION

NEW YORK OFFICE—121 W. 19th Street

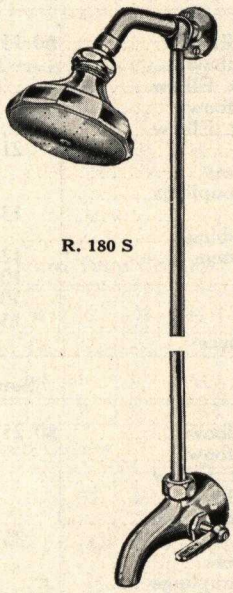
CHICAGO OFFICE—521 West Monroe Street

"Sanitary" Shower Curtains

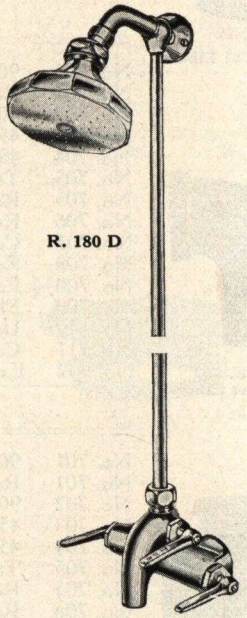
Fancy printed and woven designs—
Pastel shades in plain fabrics—
Painted and Stenciled designs—
on
Silks, Celanese, Rayons and Cretonnes
in
Waterproof, Water Repellent, Mildewproof
or Rubberized Finishes
All Finishes Absolutely Guaranteed
Colored Ducks, Mildewproof and Non-shrinkable
White Ducks, 5-oz. to 11-oz. single and double shrunk
White Rubber, Single Coated 10-ounce and
Double Coated 16-ounce
White Satine, Permanent Finish—
Plain and Water Repellent
Write for Complete Catalog

"Rane-Bow" "Converto" Fixtures

Nickel or Chromium Plated



R. 180 S

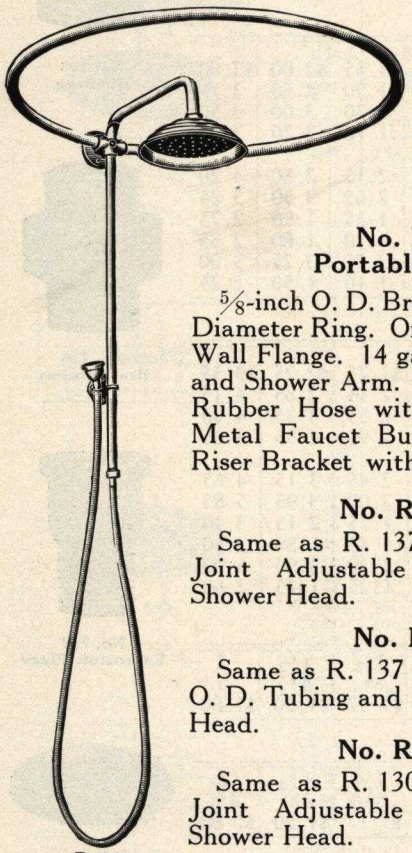


R. 180 D

R. 180 S—Converto Fixture with over the rim Single Spout. 60-inch Riser with Wall Flange. Adjustable Ball Joint OCTAGON Shower Head.

R. 180 D—Converto Fixture with over the rim Single Spout and two Supply Control Valves. 60-inch Riser with Wall Flange. Adjustable Ball Joint OCTAGON Shower Head.

"Rane-Bow" Portable Showers



R. 137

Nickel or Chromium Plated

Each Portable Shower packed in individual carton

No. R. 137
Portable Shower

5/8-inch O. D. Brass Tubing—24-inch Diameter Ring. One-piece Heavy Cast Wall Flange. 14 gauge one-piece Riser and Shower Arm. Heavy "Non-Split" Rubber Hose with "Security" Grip. Metal Faucet Bulb. One-piece Cast Riser Bracket with Hose Hook.

No. R. 137 B

Same as R. 137 except with Ball Joint Adjustable OCTAGON Cast Shower Head.

No. R. 130

Same as R. 137 except with 3/4-inch O. D. Tubing and 7-inch Brass Shower Head.

No. R. 130 B

Same as R. 130 except with Ball Joint Adjustable OCTAGON Cast Shower Head.



No. R. 190

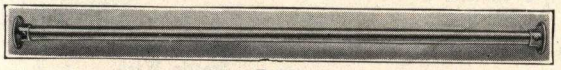
"Converto" Fixture—same as R. 180 S or R. 180 D except complete with Rectangular Bar and Ceiling Brace. R. 190 is furnished "knock-down" in easy to ship, easy to stock cartons. No loose parts to bother about or lose.

To convert old style bath tub into Modern Shower:—Remove old spout and attach new spout with Shower Control Handle. Screw Riser into Spout and attach adjustable flange to wall by two screws. Attach Arm and Head.

Send for Complete Catalogue and Price List

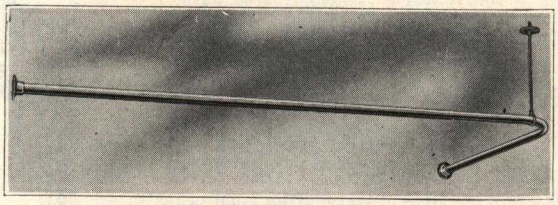
"RANE-BOW" Shower Bars and Accessories

Nickel or Chromium Plated



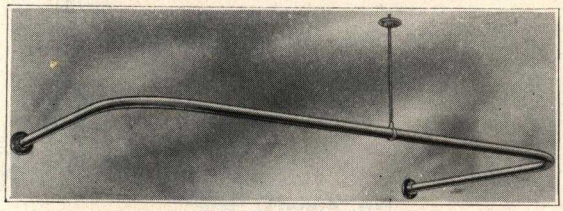
R-101

"Rane-Bow" Recess Shower Bars—with Flanges and Screws. One or Two-Piece Bars—All Sizes and Gauges—Nickel or Chromium Plated.



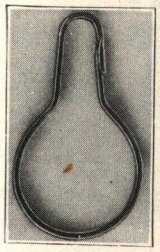
R-102

"Rane-Bow" Corner ("L") Type Shower Bars with Ceiling Brace—Flanges and Screws. In One, Two or Three Pieces with "K" Slip Joint or "M" Threaded Connections. All Sizes and Gauges—Nickel or Chromium Plated.



R-103

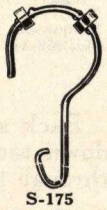
"Rane-Bow" "U" Type Shower Bars with Ceiling Brace—Flanges and Screws. In One or Three Pieces with "K" Slip Joint or "M" Threaded Connections. All Sizes and Gauges—Nickel or Chromium Plated.



S-174

"Rane-Bow" S-174 "Sanitary"

Snap Type Curtain Pin. Nickel or Chromium Plated.
2—1-in. I. D. 3—1⅜-in. I. D.
4—1⅜-in. I. D. Extra Heavy.
5—1⅝-in. I. D. Extra Heavy.
6—1⅞-in. I. D. Extra Heavy.



S-175

"Rane-Bow" S-175

Two-Ball—Open Type Silent Roller Curtain Pin. 1⅜-in. I. D. Extra Heavy. Nickel or Chromium Plated.
"Rane-Bow" S-173 (Not Illustrated)—Four-Ball Snap Type Roller Action Pin—1⅜-in. I. D. Extra Heavy.



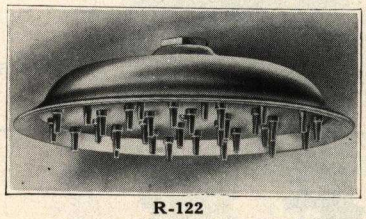
R-160

"Rane-Bow" Combination Shower Bar and Curtain Units

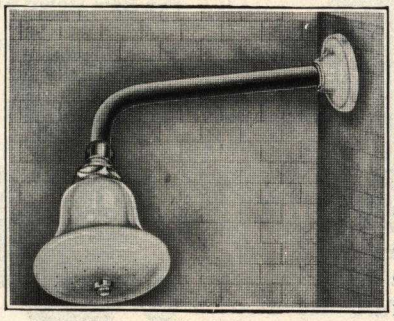
Includes Shower Bar, Flanges and "Sanitary" Shower Curtain, also Curtain Pins and Hold-Back Hook. Packed complete in one carton. Nickel or Chromium Plated. Secured in Two Models. "K" and "M." R-160 consists of 1-inch x 20 gauge two-piece Recess Bar with Slip Joint Connection—Round Wall Flanges No. R-106 with Screws—No. 451, 8 ounce White Duck "Sanitary" Shower Curtain—Snap Type Curtain Pins No. S-174-3 and Hold Back Hook and Bead Chain No. S-170. Write for different combinations and Prices.

"Rane-Bow" R-122

"Rane-Bow" Tubular Shower Heads. Two Sizes—6 and 8 inches. ½-inch I. P. S. Female Thread. Nickel or Chromium Plated.



R-122



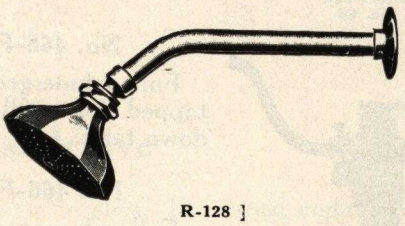
R-125

"Rane-Bow" R-125

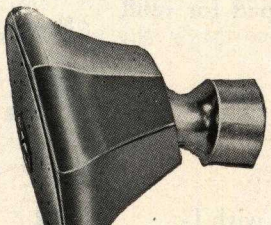
"Rane-Bow" 5-Inch China Ball Joint Heads (Removable Face). With 10-inch 45-Degree Bent Arm and China Escutcheons, Nickel or Chromium Plated.

"Rane-Bow" R-128

"Rane-Bow" OCTAGON Ball Joint, Adjustable Cast Shower Head with 10-inch Arm and Cast Escutcheon. 4¾-inch Diameter Removable Face. Nickel or Chromium Plated.



R-128



"Rane-Bow" R-140

"Rane-Bow" OCTAGON Cast Ball Joint Rosette Spray. With 3-inch Diameter Removable Face. Nickel or Chromium Plated.



S-170

"Rane-Bow S-170

Large Cast Brass Wall Hook and Rings. With Bead Chain and Screws. Nickel or Chromium Plated.

SHERWOOD BRASS WORKS DETROIT, MICH.

6331 East Jefferson Avenue

Representatives

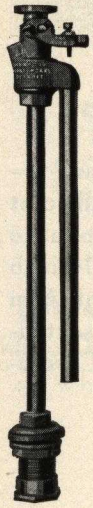
Los Angeles, Cal.
James A. Riordan Co., Inc., 1600 E. 7th St.
Minneapolis, Minn.
Fred S. Wilsey, Plymouth Bldg.

Philadelphia, Pa.
E. S. Thompson, 2401 Chestnut St.
Pittsburgh, Pa.
Geo. W. Smith Co., 348 W. Penn Place

Seattle, Wash.
James A. Riordan Co., Inc., 5319 Admiral Way
Trenton, N. J.
F. G. Hoffmann, 831 Edgewood Ave.

Sherwood Ballcocks

For Low Down and High Tanks



Sherwood No. 66

Elevated pattern for low tanks. All cast parts made of bronze with steam metal seat. One pin holds all parts in place. Positive under any pressure and practically noiseless. Furnished regular with cast tube supply, 10-inch refill and 9-inch float rod.

No. 66—Part elevated 9 inches high.

No. 166—Full elevated 12 inches high.

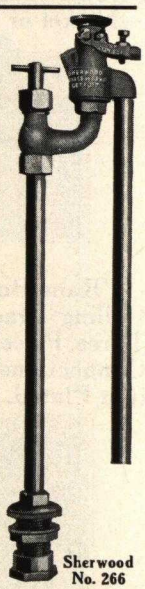


Elevated ballcock for low down tank. Same as No. 66, except with integral stop.

An excellent feature in repairing tank, or can be used as a regulator in case of very high water pressure.

No. 266—10¼ inches high.

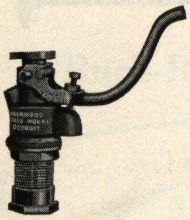
No. 366—12¾ inches high.



Sherwood No. 266

No. 466-FL

Full submerged pattern tapped for refill for low down tank.



Sherwood No. 466-FL

No. 466-FH

Full submerged pattern for high tank bottom supply. Not tapped for refill tube.



Sherwood No. 466-FH



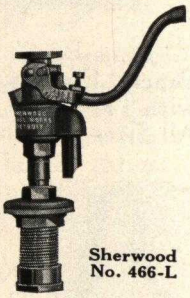
Sherwood No. 466-H

No. 466-H

Partial submerged pattern tapped for refill for low tank.

No. 466-L

Same as No. 466-L except for high tank bottom supply. Not tapped for refill.



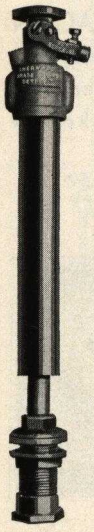
Sherwood No. 466-L

No. 77

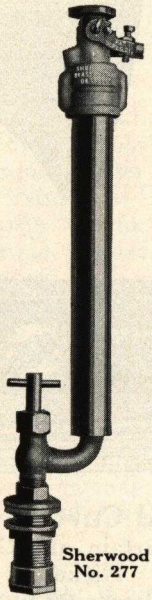
An elevated pattern with 1-inch brass hush tube over cast supply. Can also be furnished with hard rubber hush tube at slight additional cost, if desired, giving an article which will last a lifetime.

No. 277

Same as No. 77, except with integral stop.



Sherwood No. 77



Sherwood No. 277

No. 22

Back supply pattern with integral shut-off for low down tank. Arranged to connect with ⅜-inch I. P. through tank.



Sherwood No. 22

No. 566

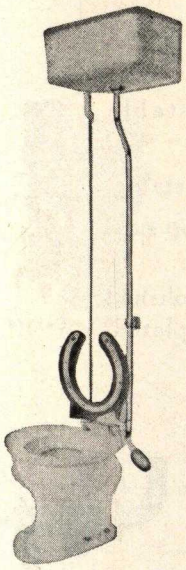
Top supply pattern ballcock for high tank. Has same simple lever as No. 66. Furnished with bent or straight ⅜-inch I. P. size threaded tail piece, coupling nut and washer.



Sherwood No. 566

Regular shank 15/16" diameter, 1⅞" long. Repair shank 2¾" long. Extra wide flange can be furnished on any shank for replacement work in wood tanks where required.

Also furnished in ½" and ¾" I. P. sizes and various other diameters if desired.
If for slip joint, give size of hole.



High Tank Combination

Maxco Closets

Maxco Seat Action Closets have a self-raising seat with nickel plated cast brass reinforcing plate and counter-weight. The low tanks are furnished with high pressure full elevated ballcocks, with shutoff, supply to floor $\frac{3}{8}$-inch full iron pipe size and weight, with flush connections. High tanks are furnished with high pressure top supply ballcocks, with flush connections to suit bowls.

Can be furnished with wood tanks (copper lined), golden oak or birch, mahogany finish, vitreous china, galvanized, and enameled cast-iron.

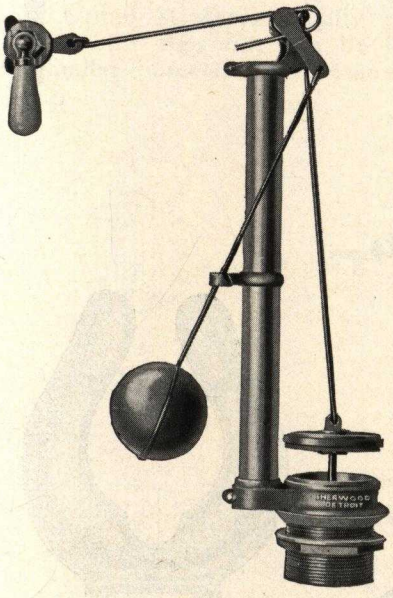
The self-raising seat can be fitted with No. 2 ball counter-weight or No. 5 Pneumatic weight. Furnished open or closed front pattern as desired.

Combinations concealed or exposed to suit conditions.

Fully guaranteed for five years.



Low Tank Combination



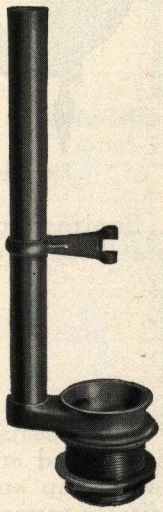
Faultless Flush Valve

Faultless Flush Valve

A valve in every sense all that the name implies. Furnished complete with double-acting lever either plain or all china, has a flat leather seat which will last a lifetime. All wires of phosphor bronze which will withstand the action of practically any water condition.

Rubber Ball Flush Valve

No. 45—$2\frac{1}{2}$-inch valve with 1-inch overflow.
No. 145—$2\frac{3}{4}$-inch valve with $1\frac{1}{4}$-inch overflow.
Regularly used in all low tanks. Double guide used for lift wires, furnished with or without lift wires, flat or bevel rubber washer and lock-nut. Has plenty of clearance between ball and tube with large waterway.



Rubber Ball Flush Valve

See Following Page

Cast Brass Urinal Fan Spreaders



C-1578

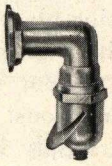
Nickel plated brass fan spreaders, complete with lock and coupling nuts.

C-1578-A—Reamed to slip ½-inch iron pipe.

C-1578—Reamed to slip ¾-inch O. D. tubing.

C-1579—With increaser to slip 1-inch tubing.

C-1571—With increaser to slip 1¼-inch tubing.



C-1580

C-1580—Back supply adjustable spreader.

C-1581—Back supply, not adjustable.

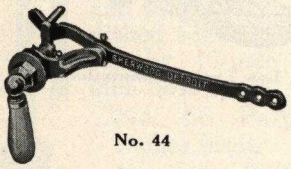
C-1575—Adjustable pattern, top supply.

Also furnished in plain brass, polished and buffed, white metal or chrome plated.

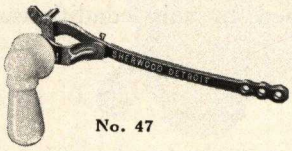


C-1575

Double Action Tank Levers



No. 44



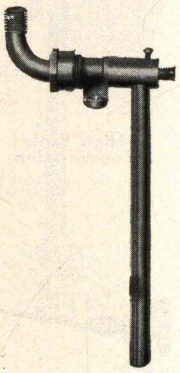
No. 47

No. 44—Plain pattern with heavy cast lever part.

No. 47—One piece all china handle, fitting tank closely. No chance of binding. Easily installed.

Urinal Inlet Valve

Inlet valve for automatic urinal tank has screw driver regulator. Gives positive control of flush.



C-10

Polished Aluminum Closet Seats

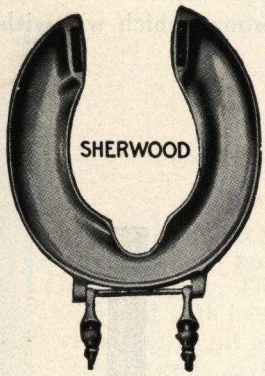


Plate No. 10

Sanitary open front seat, with cover if desired.

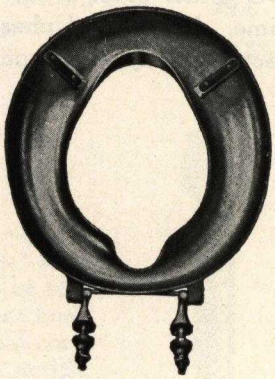


Plate No. 20

Closed front with sanitary lip into bowl.

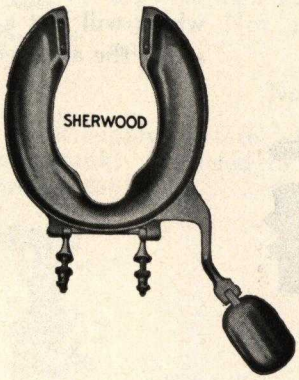


Plate No. 30

Sanitary self-raising seat, automatic action counter-weight.

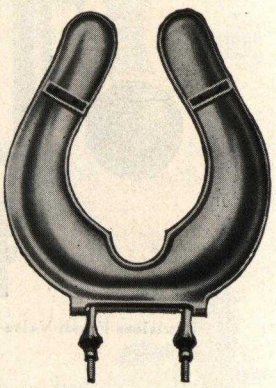


Plate No. 70

Sanitary open front—for extended lip bowl.

These seats are made of cast aluminum, highly polished, and are absolutely sanitary. May be cleaned with soap and water without the least injury. No disease germs can possibly find a refuge in or on these seats. Aluminum does not rust or corrode.

The Sherwood Aluminum Seats are also furnished in special shapes and styles for any combination.

All seats guaranteed for five years.

Urinal Strainers

Cast Brass, Polished Nickel Plated, Chrome Plated or White Metal


C-129


C-124


No. 19


C-122


C-127


C-128

C-122—Solders 2-inch lead at top.

C-123—With lock-nut only, caulks 2-inch iron or solders 2-inch lead.

C-124—Coupling caulks 2-inch iron or solders 2-inch lead.

C-125—Coupling tapped 2-inch iron pipe.

C-126—Coupling wipes 3-inch lead.

C-127—Coupling threaded 3-inch iron.

C-128—Coupling caulks 3-inch soil.

C-129—Coupling caulks 2-inch soil.

C-130—Coupling tapped 3-inch iron.

Urinal strainers usually furnished with 4½-inch diameter tops but can be furnished with larger or smaller diameter tops if desired.

C-121—Strainer top with 3-inch O. D. tail piece ⅜-inch long.

C-121-19—Ditto with bee-hive top.

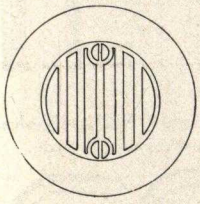
C-102—Style plate furnished on strainers C-123, 4, 5, 6, 7, 8 and 130.

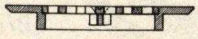
C-131—Style plate furnished on strainers C-122 and C-129.

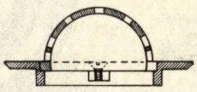
If strainers C-123, 4, 5, 6, 7, 8 and 130 are desired with bee-hive top, add No. 19 to plate number as (C-123-19).

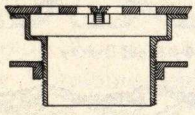
If strainers C-122 and 129 are desired with bee-hive tops, add No. 3 to plate number, as (C-122-3).

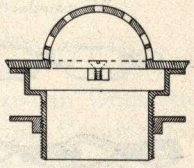
The following detail drawings show method of installing and as bottoms are interchangeable, can be made to suit any need.

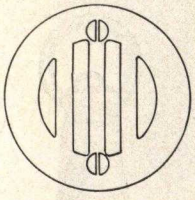

C-102

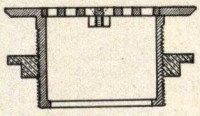

C-121

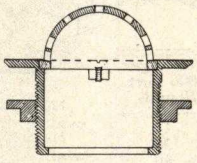

C-121-19

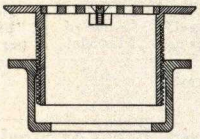

C-122

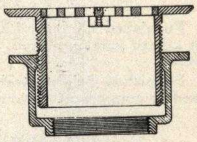

C-122-3

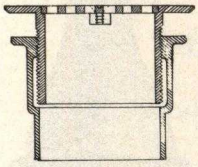

C-131

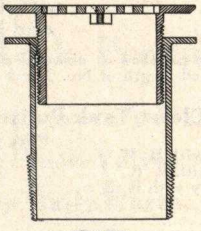

C-123

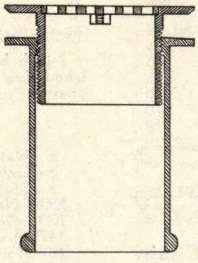

C-123-19

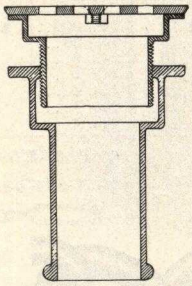

C-124

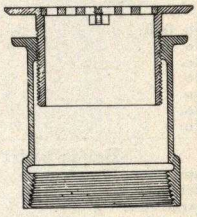

C-125


C-126


C-127


C-128


C-129


C-130

THE JOHN M. RUSSELL MFG. CO., INC. NAUGATUCK, CONN.

Boston, Mass., William Fessenden, 157 Federal St.
New York, N. Y., Harmon & Dixon, 42 Murray St.
Philadelphia, Pa., Herman O. Gessner, 247 West Ruscomb.

Representatives

New Orleans, La., James K. Wadick Co,. 1801 Whitney Bank Bldg.

Fort Worth, Texas, C. F. Adams, Inc., 420 Lake St.
Los Angeles, Cal., Wm. P. Horn Co., Wilcox Bldg.
San Francisco, Cal., Wm. P. Horn Co., 58 Federal St.
Seattle, Wash., Wm. P. Horn Co., L. C. Smith Bldg.

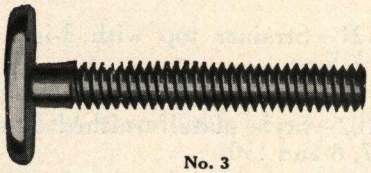
TRADE MARK
RUSSELL LINE



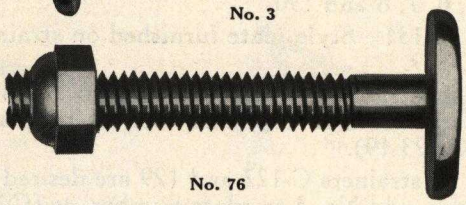
No. 8



No. 1 or No. 5



No. 3



No. 76

Closet Screws

Brass Plated and Solid Brass with N. P. Brass Heads

No. 1 and 5—¼x2½ inches.
No. 2—5/16x2½ inches.
No. 3—¼x3 inches.
No. 8—5/16x3½ inches.

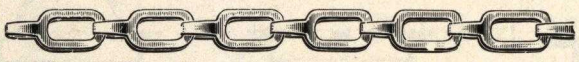
Brass Closet Bolts

With Brass N. P. Nuts

No. 3—¼x1¾ inches.
No. 7—¼x2¼ inches.
No. 6—5/16x1¾ inches.
No. 76—5/16x2¼ inches.

Boiler Chains

We manufacture all sizes of the styles mentioned below.



No. 00—Steel Safety



No. 16—Single Iron Jack



No. 16—Iron Register

Furnished 500 ft. or 1000 ft. on a reel, or cut to length desired, and put up in boxes. Furnished bright steel, also sheradized or coppered to prevent rusting.	Gauge of Material	No. of Links per Foot	Weight per 1000 Feet Pounds
	.017	26	14
	.055	26	28
	.057	24½	40

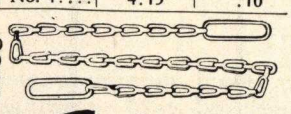
Plumbers Chain, Brass or Steel

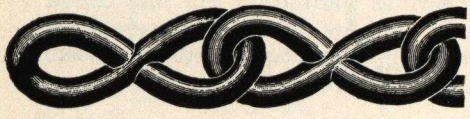
Basin Chains, N. P. or Plain.
Bath Chains, N. P. or Plain.
Wash Tray Chains, N. P. or Plain.
Packed 2 dozen in a box.

On Reels of 500 Feet	Price per 100 Feet	Extra for N. P. per 100 Feet	12 Yards in Box	Price per Box	Extra for N. P. per Box
No. 000	$3.50	$0.10	No. 000	$1.25	$0.05
No. 00	4.00	.10	No. 00	1.45	.05
No. 0	5.00	.10	No. 0	1.80	.05
No. 1	6.25	.10	No. 1	2.25	.05
No. 2	8.00	.20	No. 2	2.90	.10
No. 3	10.00	.20	No. 3	3.60	.10
No. 4	11.50	.20	No. 4	4.15	.10

Brass Split Links

Small size, 1 gross $1.50
Net extra for N. P. ..... .10
Large size, 1 gross 1.75
Net extra for N. P. ..... .10

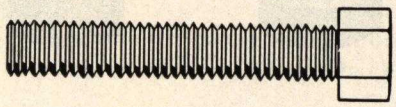


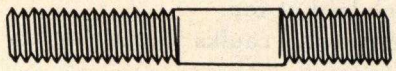


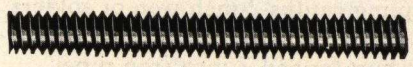
Jack Chain

For Pipe Hanging
All Sizes
Brass and Iron

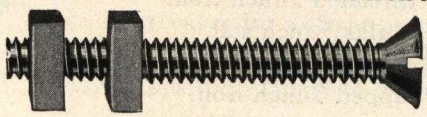
All Threaded Rods and Special Bolts

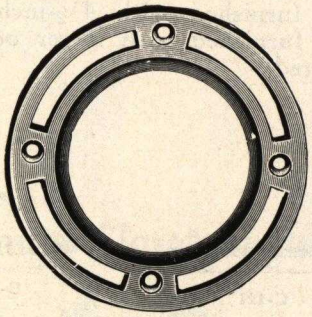






Sink Bolts—Brass or Iron with Iron Nuts



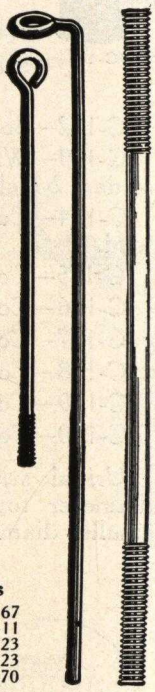


No. 1

Cast Brass Closet Flanges

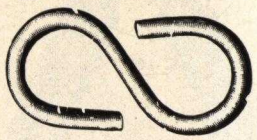
No. 1—8 ounce. $0.67
No. 2—14 ounce. 1.11
No. 3—16 ounce. 1.23
No. 4—16 ounce. 1.23
No. 5—24 ounce. 1.70

Float Rods Tank Wires

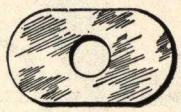


Brass or Steel—Eight Hooks

All sizes, nickel plated or plain.

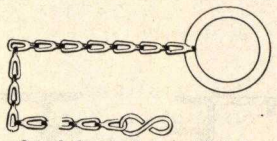


Brass N. P. Closet Screw and Bolt Washers





No. 0—1/16-inch thick oval.
No. 1—1/32-inch thick oval.
No. 2—1/32-inch thick round.
No. 20—1/16-inch thick round.
No. 3—1/32-inch thick round.
No. 30—1/16-inch thick round.



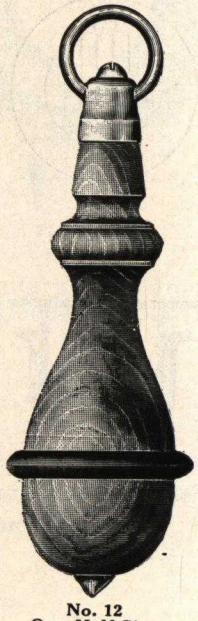
Water Closet and Shower Ring Pull, with Chain and Hook

2-inch heavy brass polished or nickeled plated polished ring with desired length of No. 3 or 4 Plumbers chain.

Water Closet Tank Pulls

	Price per Gross
2—Natural Oak with R. R	$42.00
2—Golden Oak with R. R	44.00
2—Stained Cherry with R. R	44.00
XO—Natural Oak	12.50
XO—Golden Oak	13.50
3479 A—White Enamel and R. R	35.00
40—Black Enamel	14.00
40—White Enamel	24.00
12—Natural Oak and R. R	26.00
12—Golden Oak and R. R	28.00
12—Stained Cherry and R. R	26.00

RR—Rubber Ring.



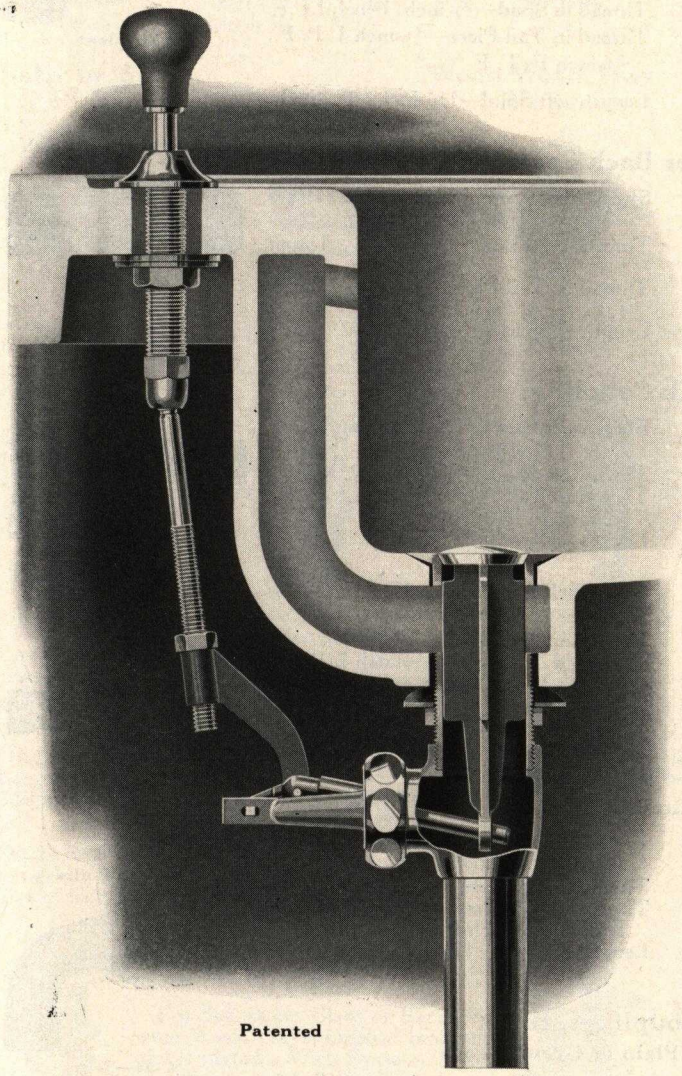
No. 12
One-Half Size

TECK MANUFACTURING CO. CHICAGO, ILL.

Main Office and Works—2540 Diversey Avenue

TECK CHICAGO

Teck Pop-up Waste



Patented

The Teck Pop-up Waste was placed on the market in 1921 and met with instant approval because it introduced a new principle in waste operation. Uncertain gravity and friction devices are dispensed with and a concealed spring is employed to hold the stopper firmly closed or open. The resultant positive and snappy action peculiar to Teck Wastes is protected by patents. Widely imitated, though never equalled, the Teck Waste today, is recognized as the best and specified by leading Architects, Engineers and Plumbers for buildings of the better type.

Made for all regular enamel and vitreous lavatories, drilled for pop-up wastes and Trade Marked with trade mark as shown above.

Teck Pop-up Waste has appeared in Domestic Engineering Plumbing and Heating Catalog for Ten Years.

Other Teck Products

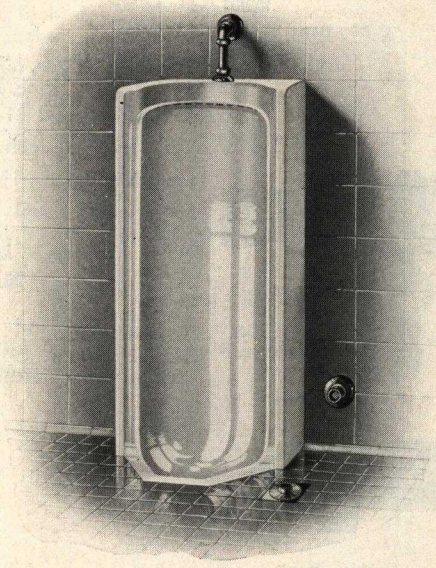
Combination Lavatory Fixtures

Teck Flush Valves

Pop-up Bath Wastes

Prison Lavatory Fittings

Ice Water Cocks—Drinking Fountains



Urinal Stall with Teck Foot Operated Flush Valve

THE TRENTON BRASS & MACHINE CO. TRENTON, N. J.

Prospect and Dale Streets

Representatives

Wollaston, Mass., Rollin C. Wilson, 103 Marlboro St.

New York, N. Y., Rollin C. Wilson, 7 E. 42nd St.

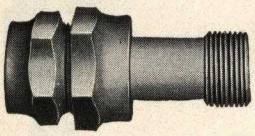
Plumbers' Brass Specialties

Couplings

Furnished In Either Straight or Bent Style

Water Back Couplings

Inside Screw



C-3—Straight

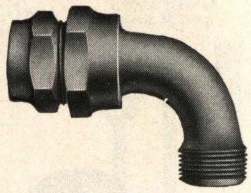
Inside Screw, for Lead Pipe, or Iron Pipe, Male

Thread in Spud—½-inch, ¾-inch, 1-inch I. P. F.
Tail Piece—½-inch, ¾-inch L. P. or I. P. M.
Length of Spud—1¼-inch, 1 5/16-inch, 1⅝-inch.

Inside Screw, for Brass and Iron Pipe, Female

Thread in Spud—¾-inch, 1-inch I.P.F.
Thread in Tail Piece—½-inch I. P. F., ¾-inch F. T. F.
Length of Spud—1 5/16-inch, 1⅝-inch.

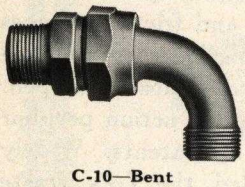
Inside Screw



C-4—Bent

Boiler and Water Back Couplings

Short Tapered Pattern



C-10—Bent

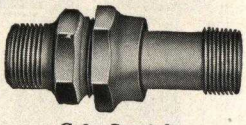
Short Tapered Pattern, for Lead Pipe, or Iron Pipe, Male

Thread on Spud — ¾-inch, 1-inch I. P. M.
Tail Piece—¾-inch, 1-inch L. P. or I. P. M.
Length of Spud—1¾-inch and 2⅛-inch.

Short Tapered Pattern, for Brass and Iron Pipe, Female

Thread on Spud — ¾-inch, 1-inch I. P. M.
Thread in Tail Piece—½-inch, ¾-inch I. P. F.; ¾-inch F. T. F.
Length of Spud—1¾-inch and 2⅛-inch

Short Tapered Pattern



C-9—Straight

Water Back Couplings

Magee Pattern



C-21—Straight

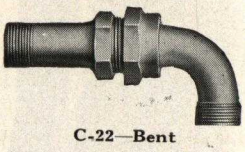
Magee Pattern, for Lead Pipe, or Iron Pipe, Male

Thread on Spud—¾-inch I. P. M.
Tail Piece—¾-inch L. P. or I. P. M.
Length of Spud—3¼-inch.

Magee Pattern, for Brass and Iron Pipe, Female

Thread on Spud—¾-inch I. P. M.
Thread in Tail Piece—½-inch I. P. F.; ¾-inch F. T. F.
Length of Spud—3¼-inch.

Magee Pattern



C-22—Bent

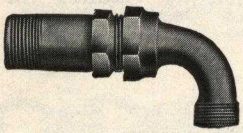
New York Pattern, for Lead Pipe, or Iron Pipe, Male

Thread on Spud—1-inch I. P. M.
Tail Piece—¾-inch L. P. or I. P. M.
Length of Spud—2⅝-inch, 3¼-inch.

New York Pattern, for Brass and Iron Pipe, Female

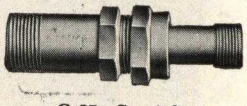
Thread on Spud—1-inch I. P. M.
Thread in Tail Piece—½-inch I. P. F.; ¾-inch F. T. F.
Length of Spud—2⅝-inch, 3¼-inch.

New York Pattern



C-28—Bent

New York Pattern



C-27—Straight

Boiler Couplings

Plain or Ground Face

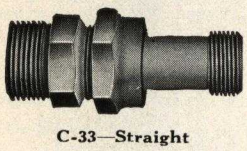
For Iron Boiler, for Lead Pipe, or Iron Pipe, Male

Thread on Spud—1-inch I. P. M.
Tail Piece—¾-inch L. P. or I. P. M.
Length of Spud—1¾-inch.

For Iron Boiler, for Brass and Iron Pipe, Female

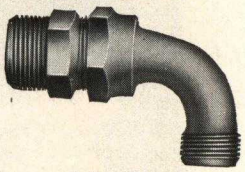
Thread on Spud—1-inch I. P. M.
Thread in Tail Piece—⅜-inch, ½-inch I. P. F.; ¾-inch F. T. F.
Length of Spud—1¾-inch.

For Iron Boiler



C-33—Straight

For Iron Boiler



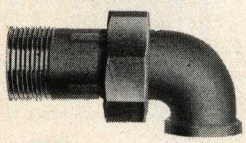
C-34—Bent

Union Boiler Couplings, Brass

Malleable Pattern, Plain or Ground Face

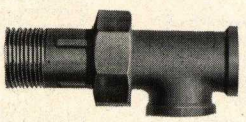
Thread on Spud.....1-inch I. P. M.
Thread in Tee.....¾-inch I. P. F.
Thread in Tail.....½-inch I. P. F. or ¾-inch I. P. F.
Spud tapped either ½-inch I. P. S. or ¾-inch I. P. S. for Dip Tube.

For Iron Boiler



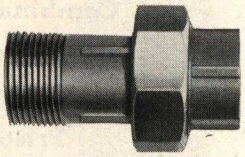
C-40½—Bent

For Iron Boiler



C-41—Tee

For Iron Boiler



C-40—Straight

GENUINE CHROMIUM PLATE CAN BE FURNISHED ON ANY OF OUR PRODUCTS

Plumbers' Brass Specialties

Brass Tee Spud Coupling

For Galvanized Range Boilers
C-41½
Ground Face

Tee Spud—1-inch I. P. M. x ¾-inch I. P. F.
Tail Piece—¾-inch I. P. M., ½-inch I. P. F. or ¾-inch F.T.F.


C-41½

Boiler Tee
C-42
Ground or Plain Face

1-inch I. P. F. x 1-inch I. P. M. x ¾-inch I. P. F., ½-inch I. P. F. or ¾-inch F. T. F.


C-42

Bath or Sink Plugs


C-43

With Brass or Rubber Stoppers

Cast Brass

Sizes, C-43—¾, 1, 1¼, 1½, 2 inches.

Wood Wash Tray Plugs


C-44

Sizes, C-44—1¼, 1½, 2 inches.

Basin Plugs Cast Brass


C-45


C-47

With Brass or Rubber Stoppers


C-49

Finished Brass or Nickel Plated

C-45—Common Overflow. C-47—Patent Overflow.
C-49—Patent Overflow with combined Jamb Nut, Union Nut and Tail Piece.

	C-45		C-47			
Diameter of Flange, inches	2⅛	2⅛	2⅛	2⅛	2⅛	2¼
Length of Body, inches...	1¾	3¼	2½	3¼	3	3
Size of Coupling, inches..	1	1	1	1	1¼	1¼

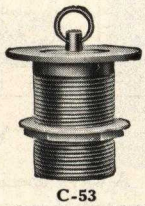
	C-49	
Diameter of Flange, inches	2⅛	2⅛
Length of Body, inches	2½	3¼
Size of Coupling, inches	1¼	1¼

Wash Tray Plugs

Cast Brass

For Soapstone, Slate or Earthenware Wash Trays, finished brass or nickel plated. With Brass or Rubber Stoppers. C-52—For Lead Pipe. C-53—For Iron Pipe.


C-52

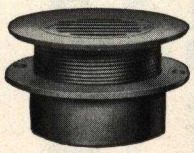

C-53

Coupling Flange Inches	Coupling Flange Inches	Coupling Flange Inches
1¼ x 2⅞	1½ x 2⅞	2 x 3
1¼ x 3	1½ x 3	2 x 3¼
1¼ x 3¼	1½ x 3¼	2 x 3⅝
1¼ x 3⅜	1½ x 3⅜	2 x 3½
1¼ x 3½	1½ x 3½	2 x 3¾
		2 x 4

N. P. Slop Strainer


C-55

Cast Brass Strainers


C-58


C-61

C-55—N. P. Slop Strainer, with winged nut to lock in trap, or without winged nut, to screw in trap. Diameter of Flange, 4½ inches.

C-58—With threaded Floor Plate, for Shower Receptor or Urinal Stall. Finished Brass or N. P.

Diameter of Flange on Strainer, inches	4½	4¾
Diameter of Flange on Floor Plate, inches	4¾	4¾
Diameter of Body on Floor Plate, inches	3½	3½

C-61—Machine finished brass Cesspool Strainer, with iron or brass tripod and removable strainer.

Diameter of Flange, inches	5	5	6	6
Size of Coupling, inches	1¼	1½	1½	2


C-62¼


C-62½


C-62¾

C-62¼—For Dental Lavatory, with Flat Loose Threaded Cap.
C-62½—For Earthenware Kitchen Sink, with Wrought Brass Strainer Sprung in Top. Shank threaded 1½-inch Iron Pipe Size
C-62¾—For Earthenware Kitchen Sink, with Combined Nut and Flat, Loose Threaded Cap.

	C-62¼	C-62½	C-62¾
Diameter of Flange, inches	2¼	3 5/16	3½
Diameter of Body, inches	1 17/32	1⅞	2 5/16
Length of Body under Flange, Ins.	2⅝	2⅝	2⅝
Diameter of Tail Piece, inches	1¼	1½	1½
Length of Tail, inches	6	5	5

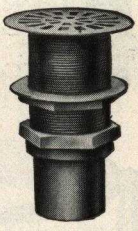

C-63

C-63—For Lead Pipe

For Earthenware Kitchen Sink, with Flat, Loose Threaded Bar Cap.

C-63½—For Lead Pipe

For Earthenware Kitchen Sink, with Flat, Loose Threaded Perforated Cap.


C-63½

Coupling Inches	Flange Inches	Coupling Inches	Flange Inches
1½	2⅞	2	3 5/16
1½	3	2	3⅜
1½	3 5/16	2	3½
1½	3½	2	4

GENUINE CHROMIUM PLATE CAN BE FURNISHED ON ANY OF OUR PRODUCTS

Plumbers' Brass Specialties

Tank Valves

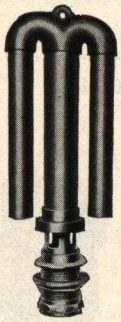

C-67


C-68

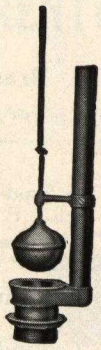

C-73

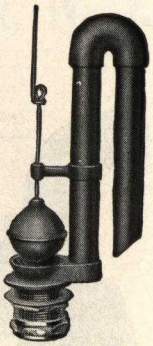

C-74


C-75


C-76


C-77


C-81


C-82

C-67—Pull, for High Tank. Nos. 10 and 11, with leather seat, rough or N. P. Union and Lock Nuts.

C-68—Cone Siphon, for High Tank. Nos. 12 and 13, with leather seat, rough or N. P. Union and Lock Nuts.

C-73—Pull, for High Tank. No. 120, with rubber seat and whitened nickel nuts.

C-74—Cone Siphon, for High Tank. No. 122, with rubber seat and whitened nickel nuts.

C-75—Pull, for High Tank. Nos. 31, 32 and 33. English Pattern, with leather seat, rough or N. P. Union and Lock Nuts.

C-76—Double Siphon, for High Tank. No. 222, with rubber seat, rough or N. P. Union and Lock Nuts, "Tu-Wa."

C-76—Same as No. 222, but with leather seat. "Tu-Wa."

C-77—"Yankee" Return Bend Siphon, for High Tank. With leather seat, rough or N. P. Union and Lock Nuts. Nos. 51 and 52.

C-81—With 2½ and 2¾-inch Ball, for Low Down Tank. Two-inch Ball for High Tank. Specify height of overflow tube.

C-82—Return Bend Siphon, with 2-inch Ball, for High Tank.

On Valves wanted without Tail Piece, always specify for what size Flush Pipe the Coupling Nut should be reamed.

	C-67		C-68		C-73	C-74	C-75		
	No. 10	No. 11	No. 12	No. 13	No. 120	No. 122	No. 31	No. 32	No. 33
Diameter of Thread on Body	1 5/8	1 3/4	1 5/8	1 3/4	1 3/4	1 3/4	1 17/32	1 3/4	2
Number of Threads per Inch	14	14	14	14	14	14	14	14	14
Coupling	1 1/4	1 1/2	1 1/4	1 1/2					
Coupling Nut Reamed									
Height of Overflow	8 1/2	8 1/2	8	8	8 1/16	7 1/16	8 1/2	8 1/2	8 1/2
Size of Rubber Ball					8	7 1/4			
Diameter of Overflow Tube									

	C-76		C-77		C-81					C-82
	No. 222	No. 212	No. 51	No. 52						
Diameter of Thread on Body	1 3/4	1 5/8	1 17/32	1 3/4	1 7/8	2 5/16	2 5/16	2 5/16	2 5/16	1 7/8
Number of Threads per Inch	14	14	14	14	11½	11½	11½	11½	11½	11½
Coupling	1 1/4	1 1/4								
Coupling Nut Reamed										
Height of Overflow	8 1/4	8 1/4	8 1/4	8 1/4						8 5/8
Size of Rubber Ball					2	2 1/2	2 1/2	2 3/4	2 3/4	2
Diameter of Overflow					1	1	1 1/4	1 1/8	1 1/4	


C-69

"Trent" Tank Valves

C-69—Nos. 41, 42, 43 and 44—Pull, for High Tank, with leather seat, rough or N. P. Union and Lock Nuts.
C-70—Nos. 45, 46 and 47—Cone Siphon, for High Tank, with leather seat, rough or N. P. Union and Lock Nuts.

	No. 41	No. 42	No. 43	No. 44	No. 45	No. 46	No. 47
Diameter of Threads on Body	1 17/32	1 5/8	1 3/4	2	1 17/32	1 5/8	1 3/4
Number of Threads per Inch	14	14	14	14	14	14	14
Coupling	1 1/4	1 1/4	1 1/2	1 1/2	1 1/4	1 1/4	1 1/2
Coupling Nut Reamed	As specified	As specified	As specified	As specified	As specified	As specified	As specified
Height of Overflow	8 1/2	8 1/2	8 1/2	8 1/2	8	8	8


C-70

Lever for Low Down Tank


C-83

Double Acting, for upper left hand corner. Metal parts are all cast brass. Will fit any tank made to take a top side lever.

Cones

For Cone Siphon Valves, for High Tank.

C-78, Straight; C-79, Tapered. Length 7½ inches.


C-78


C-79

Valve Seat—C-80

Always specify diameter of Coupling Tail Piece wanted; if wanted without Tail Piece, state for what size Flush Pipe Coupling Nut should be reamed. Also state whether Lock Nut, Union Nut and Tail Piece are wanted rough brass or N. P.

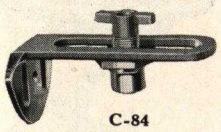

C-80

	No. 1	No. 2	No. 3
Inside diameter of Body	1 3/4	1 9/16	1 9/16
Diameter of Thread on Body, Ins.	2	1 3/4	1 3/4
Number of Threads per Inch	14	14	14
Length of Body under Flange, Ins.	2	1 3/4	2

GENUINE CHROMIUM PLATE CAN BE FURNISHED ON ANY OF OUR PRODUCTS

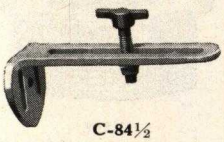
Plumbers' Brass Specialties

Lavatory Brackets



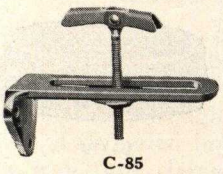
C-84

Slotted Heel, Cast Brass, Nickel Plated. With or less Cast Brass Tee Head Bolts. Length overall, 4⅞ inches. Slot in leg 11/16-inch wide, 3¾ inches long.



C-84½

Slotted Heel, Cast Iron, White Painted. With or less Cast Iron Tee Head Bolts. Length overall 5¾ inches. Slot in leg, ⅜-inch wide, 4¼ inches long.



C-85

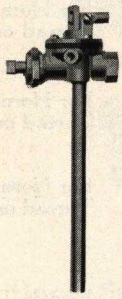
Three Holes in Heel, Cast Brass, Nickel Plated. With or less Iron Toggle Bolts and Screws. Length overall, 4 11/16 inches. Slot in leg, ½-inch wide, 3½ inches long.

Ball Cocks for Low Tanks



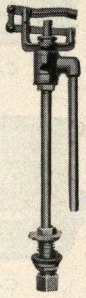
C-86

Elevated Diaphragm Bottom Supply



C-86½

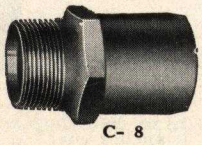
Diaphragm Back Supply



C-87

Elevated Compound Lever Bottom Supply

Trenton Code Solder Nipples



C- 8

Threaded End, inch, I. P. M...	1¼	1½	2
Lead Pipe End, inch, L. P.....	1¼	1½	2
Length Overall, inches.....	2⅞	3 5/16	3⅞

Vent and Waste Tees



C-89



C-90



C-90½



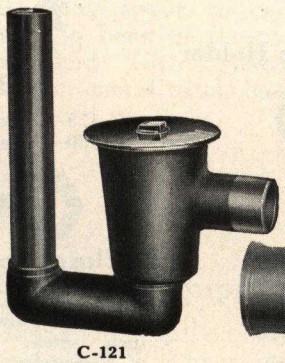
C-91

	C-89	C-90				C-90½		C-91
Top.....	1½ I.P.F.	1¼ I.P.F.	1¼ I.P.F.	1½ I.P.F.	1½ I.P.F.	1¼ I.P.F.	1½ I.P.F.	2⅜ I.D. Hub
Bottom, inches.....	1½ I.P.F.	1¼ L.P.	1¼ L.P.	1½ L.P.	1½ L.P.	1¼ L.P.	1½ L.P.	1½ L.P.
Side, inches.....	1½ I.P.F.	1¼ I.P.F.	1¼ I.P.F.	1½ I.P.F.	1½ I.P.F.	1¼ Slip	1½ Slip	1½ I.P.F.
Length Overall, inches....	4½	4¼	5¼	4½	5½	5¼	5½	4⅞

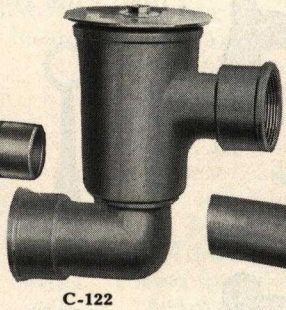
Bennor Bath Traps



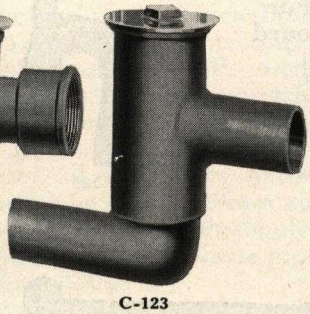
C-120
With Bottom Ell



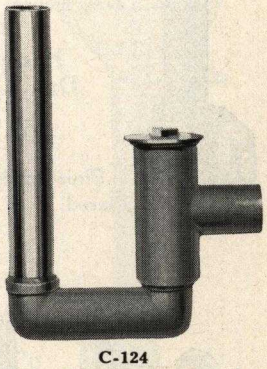
C-121
With Return Bend



C-122
With Bottom Ell



C-123
Baby—With Bottom Ell



C-124
Baby—With Return Bend

	C-120		C-121		C-122	C-123	C-124
Size of Outlet, inches.....	1¼ L.P.	1½ L.P.	1¼ L.P.	1½ L.P.	1½ I.P.F.	1¼ L.P.	1¼ L.P.
Size of Inlet, inches.....	1¼ L.P.	1½ L.P.	1⅜ O.D.	1⅜ O.D.	1½ I.P.F.	1¼ L.P.	1⅜ O.D.
Length of Inlet Pipe, inches.....	.....	.....	8	8	.....	.....	8

GENUINE CHROMIUM PLATE CAN BE FURNISHED ON ANY OF OUR PRODUCTS

Plumbers' Brass Specialties

"Sanitas" Closet Spuds with Lock Nuts



C-94

Rough Brass or Nickel Plated

C-94

For Horn in Closet, inches	1	1¼	1½	2
Thread on Spud, I. P. S., inches	1	1¼	1½	2

C-95—Increasing Spud

For Horn in Closet, inches	1¼
Thread on Spud, I. P. S., inches	1½



C-95

C-96—Reducing Spud

For Horn in Closet, inches	1	1¼	1¼	1½	2	2
Thread on Spud, I. P. S., inches	¾	¾	1	1¼	1¼	1½



C-109

Increaser for Closet Spud

C-108—Rough Brass or Finished and N. P.

Female Thread, Iron Pipe Size, inches	1¼	1½
Male Thread, Iron Pipe Size, inches	2	2

Reducer for Closet Spud

C-109—Rough Brass or Finished and N. P.

Female Thread, Iron Pipe Size, inches	1½	2	2
Male Thread, Iron Pipe Size, inches	1¼	1¼	1½



C-92 Male

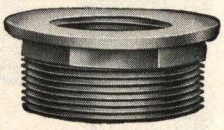
Cast Brass Slip Joint Nut, for Closet Connections

C-110—Rough Brass or Nickel Plated

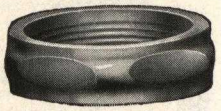
Thread in Nut, I. P. S., inches	1¼	1¼	1¼	1½	1½	1½	2
Nut reamed to take Pipe, O. D., inches	1	1¼	1⅜	1¼	1⅜	1½	2



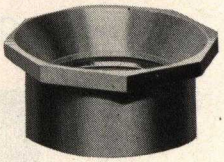
C-96



C-108



C-110



C-92½ Female

Bell Mouth Solder Bushings

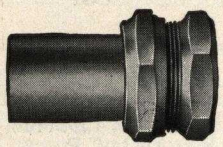
	C-92			C-92½	
	I.P.M. Inches	I.P.M. Inches	I.P.M. Inches	I.P.F. Inches	I.P.F. Inches
Threaded for I. P.	1¼	1½	2	1¼	1½
Reamed for O. D. Tube	1¼	1½	2	1¼	1½

Vent Couplings for Lead Pipe, Ground Face

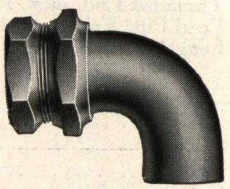
Rough Brass or Emery Finish

C-118—Straight. C-119—Bent

Thread in Spud, Iron Pipe Size, inches	1¼	1½	2
Tail Piece for Lead Pipe, inches	1¼	1½	2
Length of Spud, inches	1 1/16	1⅛	1⅛



C-118—Straight



C-119—Bent

N. P. Urinal Spreader

C-125

Length of Nipples carried in stock, 3⅝, 7, 21¾ inches.

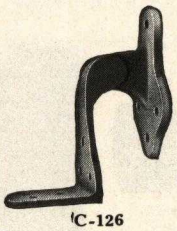


C-125

Hinge For Drain Board

C-126

Finished Brass or Nickel Plated.



C-126

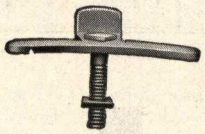
Flush Pipe Holder



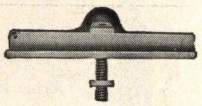
C-93¾

Nickel Plated

For ¾-inch O. D. Flush Pipe Adjustment. 2¾-inch to 3¾-inch.



C-129



C-130

Basin Clamps

C-129—"Crescent" Pattern.
C-130—"Star" Pattern.



Closet Spud Wrench

C-93

For Spud sizes, 1¼-inch, 1½-inch, 2-inch.

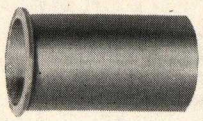


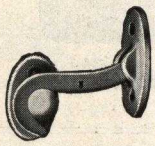
C-13 Hopper Clamp

Ferrule, Cast Brass

C-91½

2 inches x 4 inches.





Hook and Pin

C-127

For Drain Board. Finished Brass or N. P.



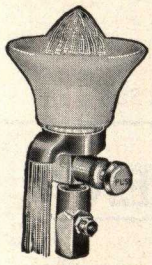
Telescope Leg

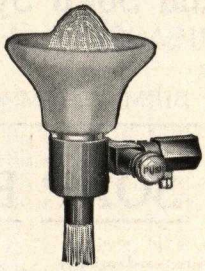
C-128

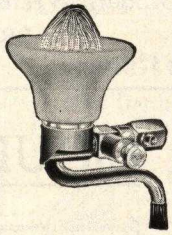
For Drain Board. Finished Brass or N. P.

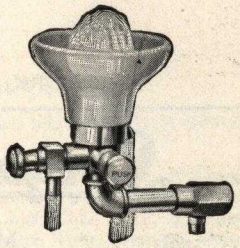
GENUINE CHROMIUM PLATE CAN BE FURNISHED ON ANY OF OUR PRODUCTS

The Trenjer Bubbling Drinking Fountains


C-A-2


C-A-3


C-A-4


C-A-8

C-A-2 For Bottom Supply

This fountain measures 6¾ inches from top of catch basin to end of shank. The shank is threaded ½-inch iron pipe, female, and can be installed in any receptor where the supply comes up through the bottom. It is fitted with a spout which is threaded fine thread for N. P. Brass tube or ⅜-inch iron pipe, female, for waste pipe. Furnished with either vitreous china or metal catch basin.

C-A-3—For Back Supply

This fountain measures 3⅞ inches from center of bubble to end of shank. The shank is threaded ½-inch iron pipe, female, and can be installed in any place where an ordinary bibb or faucet can. The outlet is threaded, ⅜-inch iron pipe, female, for waste pipe. Furnished with either vitreous china or metal catch basin.

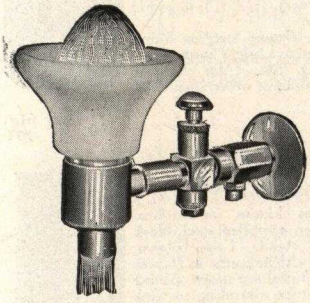
C-A-4—For Back Supply

3⅞ inches from center of bubble to end of shank. Shank threaded ½-inch I. P. F. for side wall receptors. Long spout carries water to back of receptor to prevent splashing. Furnished with vitreous china or metal catch basin.

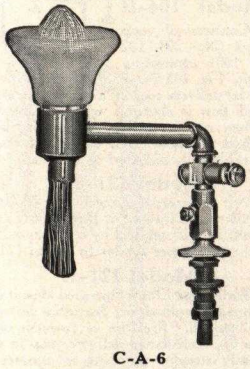
C-A-8—For Back Supply

Shank threaded ½-inch I. P. F. For installation in any place where ordinary bibb or faucet can be installed. Fitted with self-closing push button faucet for filling individual drinking cup. Vitreous china or metal catch basin.

C-A-5—For Back Supply

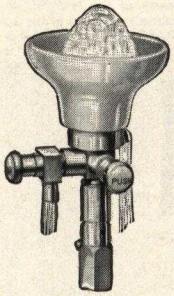

C-A-5

6⅛ inches from center of bubble to end of shank. Shank threaded ⅜-inch I. P. F. Can be installed in place of ordinary bibb or faucet. Can be furnished with long spout to carry water to back of receptor. Furnished with vitreous china or metal catch basin.


C-A-6

C-A-6— For Bottom Supply

Designed to install on basins or lavatories. Will fit in regular hole for basin faucet. Coupling threaded ¼-inch I. P. M. Furnished with vitreous china or metal catch basin.


C-A-7

C-A-7—For Bottom Supply

Shank threaded ⅜-inch I. P. F. Can be installed in any receptor where supply comes up through bottom. Fitted with self-closing push-button faucet for filling individual drinking cup. Vitreous china or metal catch basin.

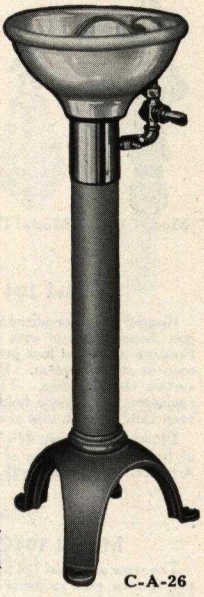
C-A-26—Pedestal Angle Stream Drinking Fountain

with heavy Vitreous China Bowl, 11-inch diameter with protecting cowl; adjustable nozzle; N. P. oscillating handle valve. N. P. loose stream regulator; N. P. brass base for bowl; 2⅞-inch O. D. iron standard with iron tripod base; all iron parts finished in white, machine gray or brown enamel; with ⅜-inch galvanized supply pipe and 1-inch galvanized waste pipe concealed in pedestal.

Approximate shipping weight, 70 pounds.

C-A-25

Exactly the same as Plate C-A-26, but with wheel handle, self-closing valve in place of oscillating solid metal handle valve.


C-A-26

GENUINE CHROMIUM PLATE CAN BE FURNISHED ON ANY OF OUR PRODUCTS

U. S. SANITARY SPECIALTIES CORPORATION

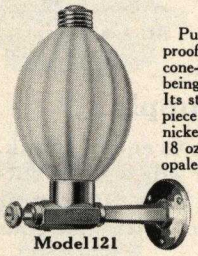
Originators "Soaperior" Liquid Soap Systems

435 South Western Avenue, CHICAGO, ILL.

BRANCH OFFICES

NEW YORK, N. Y., 59-63 East 12th Street — BIRMINGHAM, ALA., 3 South 20th Street

Soaperior LIQUID U.S. SOAP EQUIPMENT

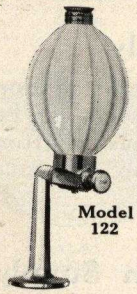


Model 121

Model 121

Push-in type, incorporates fool-proof Soaperior Valve mechanism, cone-type shut-off, all inner parts being non-corrosive nickel silver. Its strong bracket is made in one piece of tarnish-proof white metal nickel or chrome plated. Beautiful 18 oz. fluted glass globe of white opalescent or clear crystal glass (also jade green and black glass or all metal) filled through opening at top.

Dimensions: Proj. overall 6⅛"; Height; 7¼" Weighs 28 oz.



Model 122

Model 122

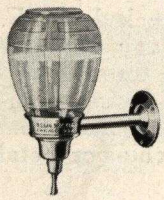
Identical to 121 but equipped with right-angle bracket made in one piece to permit attaching through cockhole in basin slab.

Dimensions: Height 10¾" above bowl; 4" shank; Proj. 6¾"; Weighs 34 oz.

Model 125

Leak-proof push-up type. Made of nickel or chrome plated white metal. 14 oz. clear glass globe made with worm thread so replacement is easy. Patented cone-type shut-off. All working parts precision tooled.

Dimensions: Height 6½"; Proj. 5½"; Weighs 1 lb.



Model 125

Model 124

For locations requiring valves on basins. Mounted through cockhole or special opening and connected to Gravity Tank System. Made of 20 to 22% nickel silver buffed or chromed. Soaperior Valve mechanism. For lavatory 2¾" thick or less. (Longer shanks on order).



Model 124



Model 123

Model 123

Made of brass or white metal nickeled or chromed. Fits faucet hole, the 16 oz. bowl concealed beneath the lavatory and only top of pump exposed. For lavatory 1¼" thick or less. (Longer shanks on order).

Soaperior Equipment is specified by noted architects and engineers and installed in world's outstanding buildings, including Mayo Clinic, Ford Motor Co., Waldorf-Astoria, Radio City, Publix Theatres, Railway Mail Terminals. It carries a 2 years' guarantee against mechanical defect.

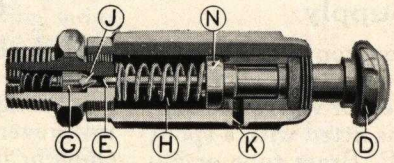
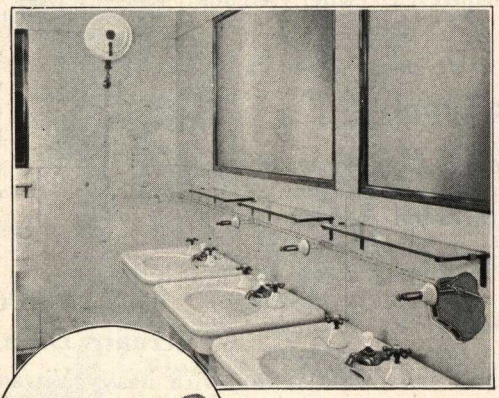


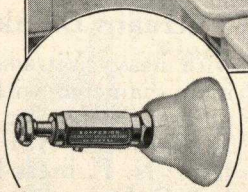
Fig. 103—Exclusive Patented Soaperior Valve

Made of strong non-corrosive white metal heavily chrome plated. (Also furnished in nickel silver or brass). It is fool-proof and incorporates this exclusive patented feature: **a rear union (G) which holds unusual pressure and acts as an individual shut-off cock, permitting removal of the body of the valve for cleaning, and allowing other valves on the line to remain in use.** Cannot leak or discharge soap in a steady stream. Stands up under great pressure. ***Also supplied with special rear union for high pressure installation.*** (Specify Fig. 103 H. P. Valve). 4" long; Diameter ⅞"; Weighs 6½ oz.

Fig. 98—Alrite Liquid Soap Valve

Lower priced valve with same leak-proof inner construction and many of the features of Fig. 103. (It contains no check valve or union.) Round brass body and push-button. Female connection. 3½" long; 1 1/16" Diameter; Weighs 6½ oz.





Tank may be exposed in washroom (above) Figs. No. 100, 101, 102 or 203, or concealed in accessible space or closet (Fig. No. 200-201). For Pent House Installations Tank Fig. No. 300.

Model 100

Round spun rust-resisting metal soap tank, white or gray enameled. (Other colors also.) Metal strainer and glass soap gauge. 1, 2, 3 and 5 gal. sizes.

Fig. 101—Monel Metal identical to Fig. 100. Enameled or chromed also.



Fig. 100

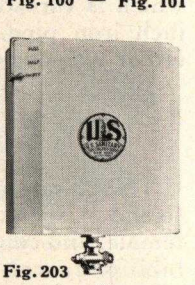


Fig. 101

Fig. 102

Shaped like Fig. 100 of white vitreous china. Includes shut-off cock, union, strainer and glass fluid gauge. Exposed metal parts chromed. 1 and 2 gallon sizes. (Also furnished square 1 to 5 gallon).

Fig. 203

Square Armco metal tank porcelain enameled inside and out. Flange and exposed metal parts chromed. Float gauge with arrow indicator and strainer. 2" filler opening in top. 1, 2½ and 5 gallon sizes.

Fig. 203

Fig. 200

Semi-cylindrical, heavy rust-resisting metal tank with soldered double seams and finished in baked-on white or gray enamel. Metal strainer and float gauge. (Other colors on order). 1, 2, 3, 5, 10 and 15 gallon sizes.

Fig. 201—Strong lustrous Monel Metal buffed to a bright finish. Identical to Fig. 200. (Also chromed, baked-on white or other enamel).



Fig. 200

Fig. 201

Fig. 300 Storage Tank

For Pent House installations. Sturdy green enameled steel, black japan iron stand. Cone bottom, float gauge with indicator and faucet opening. Funnel top under opening with long tube extending to tank bottom to keep out foreign matter. 15, 35, 65 and 110 gallon sizes.



Fig. 300

Model 104-B

Consists of soap tank (No. 203, 102 or 100) connecting pipe, Fig. 103 Valve. Pressure on foot pedal delivers soap in a steady stream and flow is shut off when released. When not in use, foot pedal may be raised off floor. All exposed metal parts heavily nickeled or chromed.

Model 121-FD

Not illustrated. Exactly like Model 104B except instead of being fed from tank, soap is supplied by a 18 oz. individual dispenser similar to Model 121.

Model 121-E

Wall-Type Elbow Operated Hospital Dispenser embodying Soaperior Valve mechanism. Pressure of forearm on the 4¼-inch flange delivers soap in a steady stream—pumping is unnecessary. Fluted 18 oz. white opalescent glass globe and strong nickel or chrome plated white metal bracket.

Dimensions: Height 7½"; Proj. 10½"; Weighs 2½ lbs.

Model 104

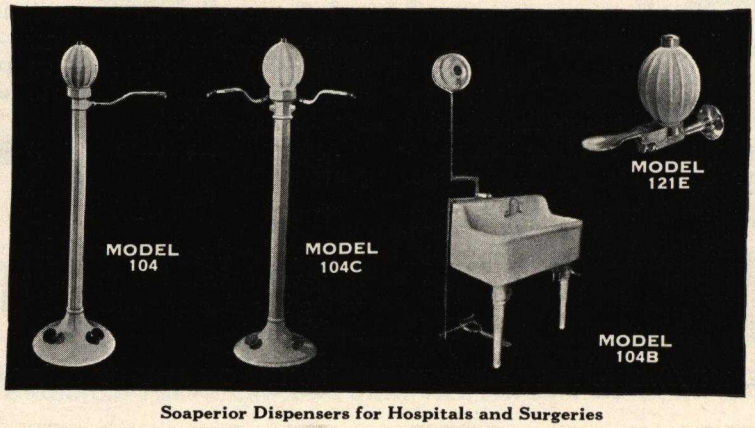
Rugged white porcelized body, hexagon shaped pedestal with swivel arm. Pressure on either foot pedal delivers soap in steady stream. Perfect back suction obviates drip. Fluted white opalescent glass globe holds ½ gallon soap (fills through top) and screws in.

Dimensions: Height 49½"; Diameter of base 14"; Clearance of spout 40"; Arm reach 13"; Weighs 45 lbs.

Model 104C

The same as Model 104 but with two swivel arms, each swinging in an arc of 180°, clearing any standard washup sink.

Dimensions: Height 51"; Diameter of base 14"; Clearance of spout 43"; Arm reach 14"; Weighs 52 lbs.



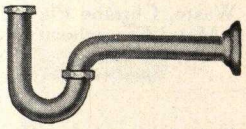
Soaperior Dispensers for Hospitals and Surgeries

AMERICAN BRASS NOVELTY CO., GRAND HAVEN, MICH.

Manufacturers of

High Grade Plumbers' Brass Goods

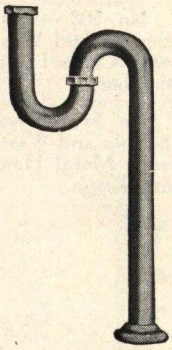
Bent Tube "P" Traps



No. 100—1¼ x 1¼-inch, N. P., 20 Gauge.
No. 104—1¼ x 1¼-inch, N. P., 17 Gauge.
No. 108—1¼ x 1½-inch, N. P., 20 Gauge.
No. 112—1¼ x 1½-inch, N. P., 17 Gauge.
No. 116—1½ x 1½-inch, N. P., 20 Gauge.
No. 120—1½ x 1½-inch, N. P., 17 Gauge.

Above traps can also be furnished with Clean Out.
Wrapped and packed one in a box, 50 in a case.
Also furnished Chrome Plated.

Bent Tube "S" Traps



No. 150—1¼x1¼-inch N. P., 20 Ga., Reg. Length.
No. 154—1¼x1¼-inch N. P., 17 Ga., Reg. Length.
No. 158—1¼x1½-inch N. P., 20 Ga., Reg. Length.
No. 162—1¼x1½-inch N. P., 17 Ga., Reg. Length.
No. 166—1½x1½-inch N. P., 20 Ga., Reg. Length.
No. 170—1½x1½-inch N. P., 17 Ga., Reg. Length.
No. 174—1¼x1¼-inch N. P., 20 Ga., 26½ inches long.
No. 178—1¼x1¼-inch N. P., 17 Ga., 26½ inches long.
No. 182—1¼x1½-inch N. P., 20 Ga., 26½ inches long.
No. 186—1¼x1½-inch N. P., 17 Ga., 26½ inches long.
No. 190—1½x1½-inch N. P., 20 Ga., 26½ inches long.
No. 194—1½x1½-inch N. P., 17 Ga., 26½ inches long.

Above traps can also be furnished with Clean Out.
Wrapped and packed one in a box, 25 in a case.
Also furnished Chrome Plated.

Extension Tubes



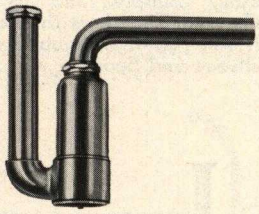


No. 750—1¼ x 6-inch, N. P., with Nut, 20 Gauge.
No. 754—1¼ x 8-inch, N. P., with Nut, 20 Gauge.
No. 758—1¼ x 10-inch, N. P., with Nut, 20 Gauge.
No. 762—1¼ x 12-inch, N. P., with Nut, 20 Gauge.
No. 766—1¼ x 6-inch, N. P., less Nut, 20 Gauge.
No. 770—1¼ x 8-inch, N. P., less Nut, 20 Gauge.
No. 774—1¼ x 10-inch, N. P., less Nut, 20 Gauge.
No. 778—1¼ x 12-inch, N. P., less Nut, 20 Gauge.

Extension Tubes also furnished in 17 Gauge.
Also furnished Chrome Plated.

Anti-Syphon "P" Traps

Ground Joint Connections

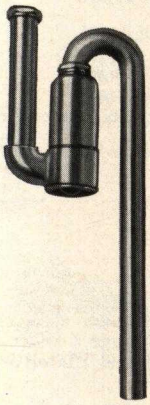


No. 700—1¼ x 1¼-inch, N. P., 20 Gauge.
No. 702—1¼ x 1¼-inch, N. P., 17 Gauge.
No. 704—1¼ x 1½-inch, N. P., 20 Gauge.
No. 706—1¼ x 1½-inch, N. P., 17 Gauge.
No. 708—1½ x 1½-inch, N. P., 20 Gauge.
No. 710—1½ x 1½-inch, N. P., 17 Gauge.

Also furnished Chrome Plated.

Anti-Syphon "S" Traps

Ground Joint Connections

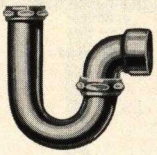


No. 712—1¼ x 1¼-inch, N. P., 20 Ga., Reg. Length.
No. 714—1¼ x 1¼-inch, N. P., 17 Ga., Reg. Length.
No. 716—1¼ x 1½-inch, N. P., 20 Ga., Reg. Length.
No. 718—1¼ x 1½-inch, N. P., 17 Ga., Reg. Length.
No. 720—1½ x 1½-inch, N. P., 20 Ga., Reg. Length.
No. 722—1½ x 1½-inch, N. P., 17 Ga., Reg. Length.
No. 724—1¼ x 1¼-inch, N. P., 20 Ga., 26½ inches long.
No. 726—1¼ x 1¼-inch, N. P., 17 Ga., 26½ inches long.
No. 728—1¼ x 1½-inch, N. P., 20 Ga., 26½ inches long.
No. 730—1¼ x 1½-inch, N. P., 17 Ga., 26½ inches long.
No. 732—1½ x 1½-inch, N. P., 20 Ga., 26½ inches long.
No. 734—1½ x 1½-inch, N. P., 17 Ga., 26½ inches long.

Also furnished Chrome Plated.

Sink Traps with Cast Outlets

This Swivel Sink Trap is made of seamless brass tubing, cast brass nuts and cast outlet.



No. 250—1¼ x 1¼—1¼-inch Tube Bend, 20 Gauge.
No. 254—1¼ x 1¼—1¼-inch Tube Bend, 17 Gauge.
No. 258—1¼ x 1½—1½-inch Tube Bend, 20 Gauge.
No. 262—1¼ x 1½—1½-inch Tube Bend, 17 Gauge.
No. 266—1¼ x 1½—1¼-inch Tube Bend, 20 Gauge.
No. 270—1¼ x 1½—1¼-inch Tube Bend, 17 Gauge.
No. 274—1½ x 1½—1½-inch Tube Bend, 20 Gauge.
No. 278—1½ x 1½—1½-inch Tube Bend, 17 Gauge.

All of the above traps can also be furnished with Clean Out.
Also furnished Chrome Plated.

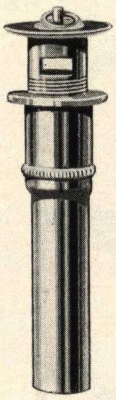
Semi-Cast "P" Traps



No. 124—1¼ x 1¼-inch, N. P., 20 Gauge.
No. 128—1¼ x 1¼-inch, N. P., 17 Gauge.
No. 132—1¼ x 1½-inch, N. P., 20 Gauge.
No. 136—1¼ x 1½-inch, N. P., 17 Gauge.
No. 140—1½ x 1½-inch, N. P., 20 Gauge.
No. 144—1½ x 1½-inch, N. P., 17 Gauge.

All of the above traps furnished with Clean Outs.
Can also be furnished in "S" Pattern in Regular and 26½-inch lengths.
Also furnished Chrome Plated.

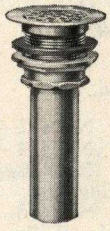
P. O. Plugs



No. 300—1¼ x 5-inch, N. P., Wrot Strainer, 20 Gauge.
No. 304—1¼ x 5-inch, N. P., Wrot Strainer, 17 Gauge.
No. 302—1¼ x 5-inch, N. P., Cast Strainer, 20 Gauge.
No. 306—1¼ x 5-inch, N. P., Cast Strainer, 17 Gauge.
No. 308—1¼ x 6-inch, N. P., Wrot Strainer, 20 Gauge.
No. 312—1¼ x 6-inch, N. P., Wrot Strainer, 17 Gauge.
No. 310—1¼ x 6-inch, N. P., Cast Strainer, 20 Gauge.
No. 314—1¼ x 6-inch, N. P., Cast Strainer, 17 Gauge.

Also made in 8, 10 and 12-inch lengths, 20 and 17 Gauge.
Furnished with Mack Washer, Rubber Stopper and Chain.
Also furnished Chrome Plated.

Sink Plugs



No. 340—1¼ x 4¼-inch, N. P., 22 Gauge Tailpieces.
No. 342—1¼ x 4¼-inch, N. P., 17 Gauge Tailpieces.
No. 344—1¼ x 6 -inch, N. P., 22 Gauge Tailpieces.
No. 346—1¼ x 6 -inch, N. P., 17 Gauge Tailpieces.
No. 360—1½ x 4¼-inch, N. P., 22 Gauge Tailpieces.
No. 362—1½ x 4¼-inch, N. P., 17 Gauge Tailpieces.
No. 364—1½ x 6 -inch, N. P., 22 Gauge Tailpieces.
No. 366—1½ x 6 -inch, N. P., 17 Gauge Tailpieces.

Also made with 8, 10 and 12-inch Tailpieces in 17 and 22 Gauge.
Also furnished Chrome Plated.

Sink Plug Tailpieces

Separate Tailpieces furnished for any of the above sizes in 17 or 22 Gauge, Nickel or Chrome Plated.



Sink Connections

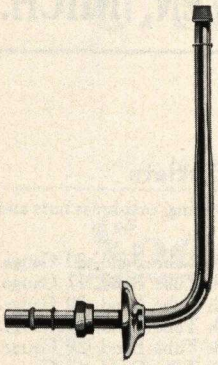
No. 420—1¼ x 4½-inch, N. P., 20 Gauge.
No. 422—1¼ x 6 -inch, N. P., 20 Gauge.
No. 430—1½ x 4½-inch, N. P., 20 Gauge.
No. 432—1½ x 6 -inch, N. P., 20 Gauge.

Can also be furnished in 8, 10 or 12-inch lengths.
Also made in 17 Gauge.

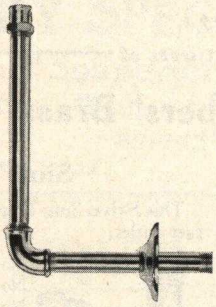
See Following Page

Lavatory Supply Pipes

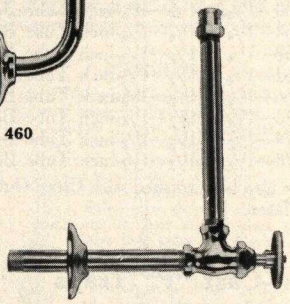
To the Wall



No. 460



No. 464



No. 466

No. 460—9/16-inch O. D., 6½x10 inches, N. P., Reduced Ends.
No. 462—⅜-inch I. P. S., 6½x10 inches, N. P., Reduced Ends.
No. 464—⅜-inch I. P. S., 6x8 inches, N. P., with Ell and Reducing Couplings.
No. 466—⅜-inch I. P. S., 6x8 inches, N. P., with Wheel Handle Stop and Reducing Coupling.
Made in all standard gauges.
Also furnished Chrome Plated.

Lavatory Supply Pipes

To the Floor



No. 472



No. 476



No. 478

No. 472—9/16-inch O. D., 29 inches long, N. P., Reduced Ends.
No. 474—⅜-inch I. P. S., 29 inches long, N. P., Reduced Ends.
No. 476—⅜-inch I. P. S., 26½ inches long, N. P., with Reducing Coupling.
No. 478—⅜-inch I. P. S., 26½ inches long, N. P., with Wheel Handle Stop and Reducing Coupling.
Made in all standard gauges.
Also furnished Chrome Plated.

Speedy Connections



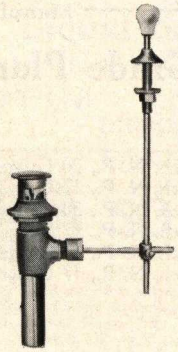
No. 480

No. 480—⅜-inch I. P. S. x 5 inches, 17 Gauge, Angle Pattern.
No. 482—⅜-inch I. P. S. x 8 inches, 17 Gauge, Angle Pattern.
No. 484—⅜-inch I. P. S. x 5 inches, 17 Gauge, Straight Pattern.
No. 486—⅜-inch I. P. S. x 8 inches, 17 Gauge, Straight Pattern.
Furnished Satin Nickel Plated or Satin Chrome Plated.



No. 484

Lavatory Fixtures



No. 500

Plain Design

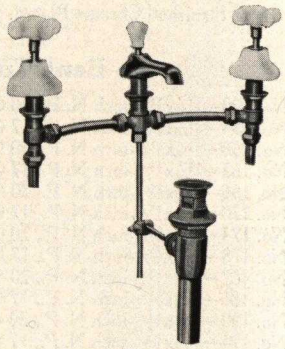
No. 500—Pop-Up Waste, Nickel Plated, with China Knob and Metal Escutcheon.

No 505—Pop-Up Waste, Chrome Plated, with Metal Knob and Metal Escutcheon.

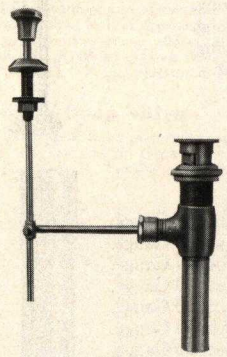
Plain Design

No. 508—Combination Lavatory Supply and Waste, Nickel Plated, with China Handle and China Escutcheons.

No. 513—Combination Lavatory Supply and Waste, Chrome Plated, with Metal Handles, Escutcheons and Knob.



No. 508



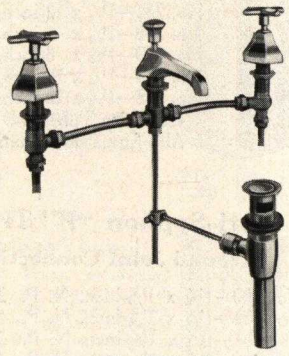
No. 1001

Hexart Design

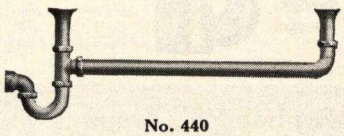
No. 1001—Pop-Up Waste, Chrome Plated, with Hexart Metal Knob and Metal Escutcheon.

Hexart Design

No. 1003—Combination Lavatory Supply and Waste, Chrome Plated, with Hexart Metal Handles, Knob, Escutcheons and Spout.



No. 1003

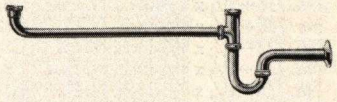


No. 440

Continuous Wastes

Laundry Trays

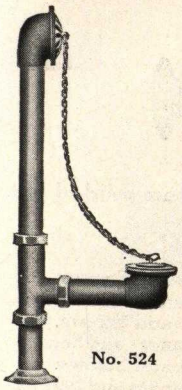
No. 440—1½-inch, N. P., 25½-inch centers, 20 Gauge.
No. 442—1½-inch, N. P., 30¼-inch centers, 20 Gauge.
Furnished in Rough Brass, Satin or Polished Nickel Plated or Chrome Plated.



No. 448

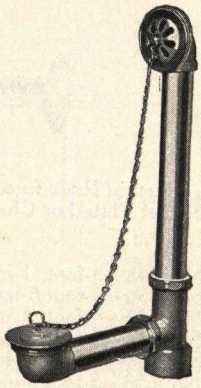
No. 446—1½-inch, N. P., 25½-inch centers, 20 Gauge.
No. 448—1½-inch, N. P., 30¼-inch centers, 20 Gauge.
Furnished in Rough Brass, Satin or Polished Nickel Plated or Chrome Plated.

Connected Bath Wastes and Overflows



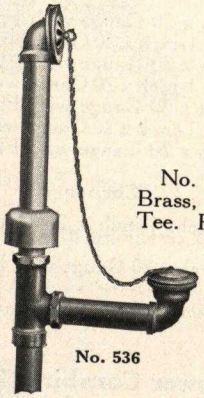
No. 524

No. 524—1⅜-inch, Polished N. P. tubes, white plated fittings.
No. 526—1⅜-inch, All Polished Nickel Plated.



No. 540

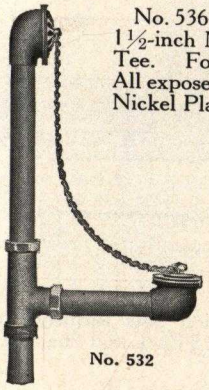
No. 540—1½-inch, Rough Brass, with 1½-inch Female Tee. For concealed work.



No. 536

No. 538 — 1½-inch, Rough Brass, with 1½-inch Male Tee. For concealed work.

No. 536—1⅜-inch, with 1½-inch Male Thread on Tee. For tiled-in tubs. All exposed parts Polished Nickel Plated.



No. 532



No. 560 Kuhnle Trip Lever Wastes

No. 532—1⅜-inch x 1½-inch, Male Thread on Tee. Rough Brass.

No. 534—1⅜-inch x 1½-inch, Female Thread on Tee. Rough Brass.

Trip Lever Wastes

No. 560—1½-inch, Rough Brass, Female Tee, Parts inside tub are N. P.

No. 562—1½-inch, Rough Brass, Male Tee, Parts inside tub are N. P.

All Connected Wastes and Overflows can be furnished either in 20 or 17 gauge. Can also be furnished Chrome Plated.

Bath Supply Pipes



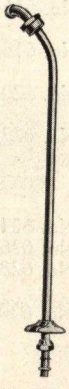
No. 520

No. 518—9/16-inch O. D., 45-degree Offsets, 20½ inches long. Nickel Plated.

No. 520—½-inch I. P. S., Straight Pattern, 20½ inches long. Nickel Plated.

No. 522—½-inch I. P. S., Straight Pattern, with wheel handle stop, 20½ inches long. Nickel Plated. (Not illustrated).

Also furnished Chrome Plated



No. 518



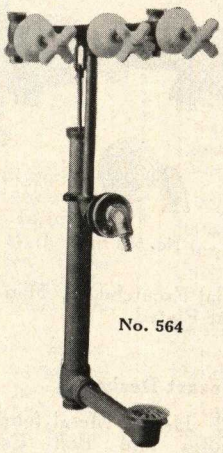
No. 516

Ball Ell Couplings

No. 516—½-inch I. P. S., Cast Brass. Nickel Plated or Chrome Plated.

Bath Fixtures

Standing Waste and Shower Fixtures with supply and waste valves, top spout supply and 2-inch standing waste. 1½-inch O. D. waste tube. Valves 11 inches center to center.



No. 564

Plain Design

No. 564—China Handles and Bell Escutcheons. Exposed parts Nickel Plated.

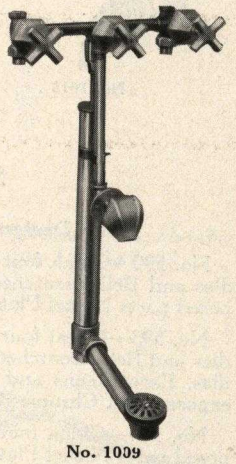
No. 567—Metal Handles and Bell Escutcheons. Exposed parts Chrome Plated.

No. 568—China Handles and Flat Escutcheons. Exposed parts Nickel Plated.

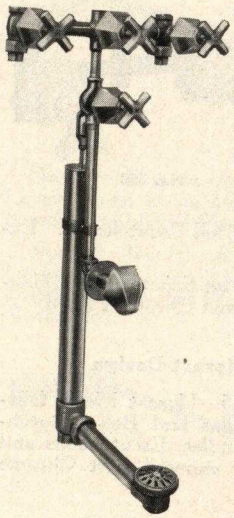
No. 571—Metal Handles and Flat Escutcheons. Exposed parts Chrome Plated.

Hexart Design

No. 1009—Hexart Metal Handles and Bell Escutcheons with Hexart Spout to match. All exposed parts Chrome Plated.



No. 1009



No. 1021

Bath Fixture with Transfer Valve

No. 1021—Hexart Design. For diverting water from tub to shower. With Hexart Metal Handles, Escutcheons and Spout. All exposed parts Chrome Plated.

Can also be furnished with China Handles and Escutcheons and with exposed parts Nickel Plated.

Transfer Valves

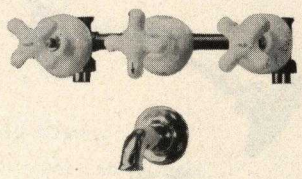
For diverting water from tub to shower.

Plain Design

No. 572—China Handles and Bell Escutcheons. Exposed parts Nickel Plated.

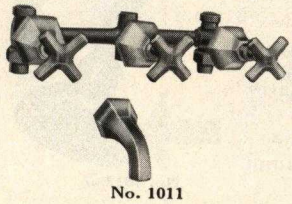
No. 575—Metal Handles and Bell Escutcheons. Exposed parts Chrome Plated.

No. 576—China Handles and Flat Escutcheons. Exposed parts Nickel Plated.



No. 572

No. 579—Metal Handles and Flat Escutcheons. Exposed parts Chrome Plated.



No. 1011

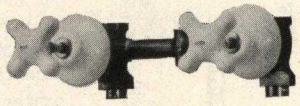
Hexart Design

No. 1011—Hexart Metal Handles and Bell Escutcheons with Hexart Spout to match. Exposed parts Chrome Plated.

See Following Page

Over Rim Tub Fillers

Plain Design



No. 580—China four-arm Handles and Bell Escutcheons. Exposed parts Nickel Plated.

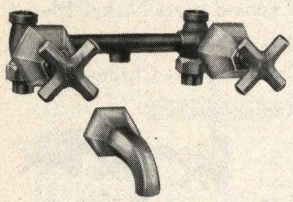
No. 583—Metal four-arm Handles and Bell Escutcheons. Handles, Escutcheons and exposed parts Chrome Plated.



No. 584—China four-arm Handles and Flat Escutcheons. Exposed parts Nickel Plated.

No. 580

No. 587—Metal four-arm Handles and Flat Escutcheons. Handles, Escutcheons and exposed parts Chrome Plated.



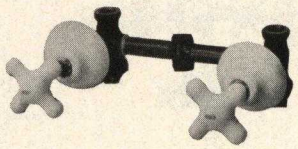
No. 1013

Hexart Design

No. 1013—Hexart Metal four-arm Handles and Bell Escutcheons, with Hexart Spout to match. Handles, Escutcheons, Spout and any other exposed part Chrome Plated.

Shower Valves

Plain Design



No. 590—China four-arm Handles and Bell Escutcheons. Exposed parts Nickel Plated.

No. 593—Metal four-arm Handles and Bell Escutcheons. Handles, Escutcheons and any other exposed part Chrome Plated.

No. 590

No. 594—China four-arm Handles and Bell Escutcheons. Exposed parts Nickel Plated.

No. 597—Metal four-arm Handles and Flat Escutcheons. Handles, Escutcheons and any other exposed part Chrome Plated.

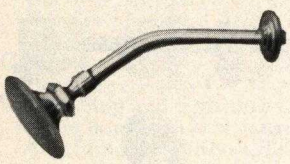


No. 1015

Hexart Design

No. 1015—Hexart Metal four-arm Handles and Bell Escutcheons. Handles, Escutcheons and any other exposed part Chrome Plated.

Shower Heads and Arms



No. 632

Plain Design

No. 632—4-inch Cast Brass Shower Head with integral ball joint arm and wall flange. Polished and Nickel Plated. Can also be furnished Chrome Plated.

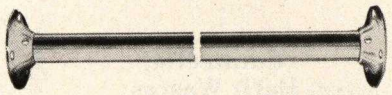
Hexart Design

No. 1017—Hexart Heavy Stamped Shower Head with removable face, ball joint, arm and wall flange. Can be furnished Nickel or Chrome Plated.



No. 1017

Curtain Rods



No. 648

Curtain Rods furnished complete as listed, and are polished and Nickel Plated or Chrome Plated.

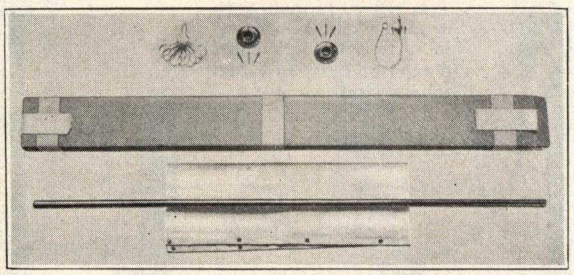
Recess

No. 648—3-foot, 1-inch x 20 Gauge with Flanges and Screws.
No. 650—3-foot 6-inch, 1-inch x 20 Gauge with Flanges and Screws.
No. 652—4-foot, 1-inch x 20 Gauge with Flanges and Screws.
No. 654—4-foot 6-inch, 1-inch x 20 Gauge with Flanges and Screws.
No. 656—5-foot, 1-inch x 20 Gauge with Flanges and Screws.
No. 658—5-foot 6-inch, 1-inch x 20 Gauge with Flanges and Screws.
No. 660—6-foot, 1-inch x 20 Gauge with Flanges and Screws.

Corner

No. 662—4-foot 6-inch, 1-inch x 20 Gauge with Heavy Large Oval Cast Flanges.
No. 664—5-foot, 1-inch x 20 Gauge with Heavy Large Oval Cast Flanges.
No. 666—5-foot 6-inch, 1-inch x 20 Gauge with Heavy Large Oval Cast Flanges.

Shower Combinations



Complete Shower Curtain Combination Sets furnished with Curtain, 1-inch Brass 20 Gauge Rod, Hold Back and Snaps, all in one box.

Recess

No. 600—3-foot Rod with 7-ounce White Duck Curtain.
No. 602—3-foot 6-inch Rod with 7-ounce White Duck Curtain.
No. 604—4-foot Rod with 7-ounce White Duck Curtain.
No. 606—4-foot 6-inch Rod with 7-ounce White Duck Curtain
No. 608—5-foot Rod with 7-ounce White Duck Curtain.
No. 610—5-foot 6-inch Rod with 7-ounce White Duck Curtain.
No. 612—3-foot Rod with 8-ounce Double Filled White Duck Curtain.
No. 614—3-foot 6-inch Rod with 8-ounce Double Filled White Duck Curtain.
No. 616—4-foot Rod with 8-ounce Double Filled White Duck Curtain.
No. 618—4-foot 6-inch Rod with 8-ounce Double Filled White Duck Curtain.
No. 620—5-foot Rod with 8-ounce Double Filled White Duck Curtain.
No. 622—5-foot 6-inch Rod with 8-ounce Double Filled White Duck Curtain.

Corner

No. 624—5-foot Rod with 7-ounce White Duck Curtain.
No. 626—5-foot 6-inch Rod with 7-ounce White Duck Curtain.
No. 628—5-foot Rod with 8-ounce Double Filled White Duck Curtain.
No. 630—5-foot 6-inch Rod with 8-ounce Double Filled White Duck Curtain.

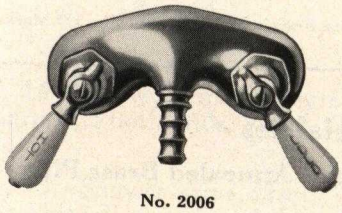


No. 40

Extension Drum Trap Covers

No. 40—3-inch I. P. S., with 2¼-inch adjustment. With Polished Nickel Plated or Chrome Plated Floor Plate.

Bath Faucets



No. 2006

No. 2006—Double Bath Faucet with China Lever Indexed Handles.

Can also be furnished with all metal Lever Handles.

Either type furnished Nickel Plated or Chrome Plated.



Pat. Pend.

The above illustration shows the Renewable Unit which is furnished with all our Bath and Lavatory Faucets. These faucets are all regularly furnished with renewable seats.

These features assure our faucets lasting as long as the fixture to which they are attached. All wearing parts can be renewed in a couple of minutes.

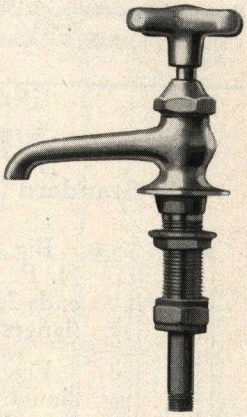
Lavatory Faucets

No. 2000—Lavatory Faucet with China Lever Indexed Handle. (Not illustrated.)

No. 2002—Lavatory Faucet with four-arm China Cross Handle. (Not illustrated.)

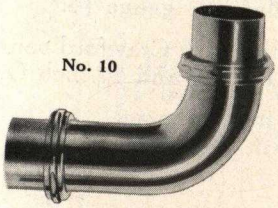
No. 2004—Lavatory Faucet with four-arm Brass Metal Cross Handle.

Any of the above can be furnished with all exposed parts either Nickel or Chrome Plated.



No. 2004

Closet Tank Trimmings



No. 10

Closet Tank Elbows

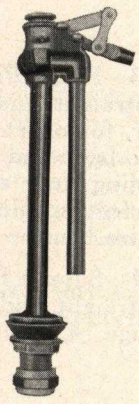
Size, 2 inches O. D. Made of 20 gauge Seamless Brass Tubing.

No. 10—2 x 4 x 5-inch, Nickel Plated, with Nuts and Washers.
No. 12—2 x 4 x 6-inch, Nickel Plated, with Nuts and Washers.
No. 14—2 x 5 x 5-inch, Nickel Plated, with Nuts and Washers.
No. 16—2 x 5 x 7-inch, Nickel Plated, with Nuts and Washers.
No. 18—2 x 5 x 10-inch, Nickel Plated, with Nuts and Washers.
No. 20—2 x 6 x 8-inch, Nickel Plated, with Nuts and Washers.
No. 22—2 x 6 x 10-inch, Nickel Plated, with Nuts and Washers.
No. 24—2 x 6 x 12-inch, Nickel Plated, with Nuts and Washers.
Also furnished Chrome Plated

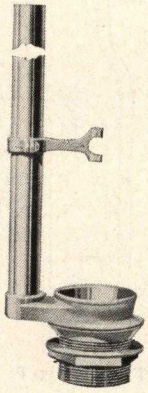
Ballcocks and Flush Valves



No. 50



No. 54



No. 58

Ballcocks

No. 50—Full Elevated Ballcock, 3/8-inch supply tube, 5/8-inch discharge tube.

No. 52—Submerged Type Compound Lever Ballcock. (Not illustrated).

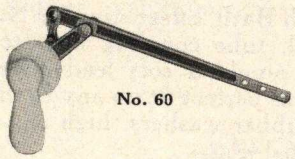
No. 54—Full Elevated Compound Lever Ballcock, 3/8-inch supply tube, 5/8-inch discharge tube.

No. 56—Submerged Type Compound Lever Ballcock. (Not illustrated).

Flush Valves

No. 58—Douglas Type Flush Valve with 1-inch Overflow. For 2 1/2-inch ball.

Trip Levers

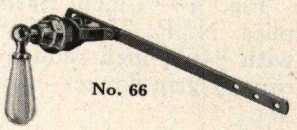


No. 60

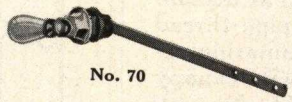
No. 60—All China Lever Handle, Double Acting Trip Lever.

No. 66—Double Acting Trip Lever, China Lever Handle. Exposed parts Nickel Plated.

No. 68—Rotary Acting Trip Lever, China Lever Handle. Exposed parts Nickel Plated. (Not illustrated).



No. 66

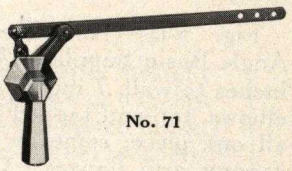


No. 70

No. 70—Single Acting Trip Lever, China Lever Handle. Exposed parts Nickel Plated.

Hexart Design

No. 71—Double Acting Trip Lever, Metal Lever Handle and Escutcheon in Hexart Design. Chrome Plated.



No. 71

Tank Supply Pipes

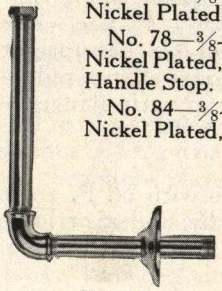
No. 72—3/8-inch I. P. S. Straight Tank Supply, Nickel Plated, 19 and 21-inch lengths.

No. 78—3/8-inch I. P. S. Straight Tank Supply, Nickel Plated, 19 and 21-inch lengths, with Wheel Handle Stop.

No. 84—3/8-inch I. P. S. Angle Tank Supply, Nickel Plated, 8 7/16 x 5 7/16 inches to center of elbow.

No. 90—3/8-inch I. P. S. Angle Tank Supply, Nickel Plated, with Wheel Handle Stop. 8 7/16 x 5 7/16 inches to center of stop.

Any of the above can also be furnished Chrome Plated.



No. 84



No. 72

STANDARD BRASS MANUFACTURING CO. UTICA, N. Y.

25-27 Whitesboro Street

Representatives:

Boston, Mass., Rollin C. Wilson, 261 Franklin St.
Chicago, Ill., J. H. Lehnen Co., 1510 Newberry Ave.
Cleveland, Ohio, John W. Stiles & Son, 700 Prospect-Fourth Bldg.
Detroit, Mich., D. M. Hamilton, 2842 West Grand Blvd.
New York, N. Y., Rollin C. Wilson, 7 E. 42nd. St.
San Francisco, Cal., E. L. Culin, 525 Market St.

Plumbers' Nickel and Chromium Plated Specialties

"Standard" Bath and Basin Supplies Made of Best Quality Special Annealed Brass Pipe

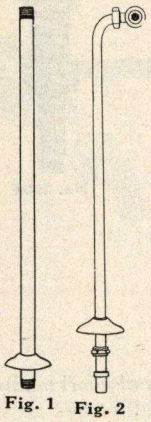


Fig. 1 Fig. 2

Fig. 1—½-inch Bath, Straight supplies N. P. ½-inch I. P. Size threaded both ends 20½ and 22 inches long, canopy grip flanges—gauges 14-12-IPS & Wt.

Fig. 2-A—½-inch Bath, Offset supplies similar to Fig. 2. N. P. ½-inch I. P. Size threaded at bottom end, 21½ inches long, coupling nuts to bath cock with moulded soft lead cone joint which insures perfect fit on any bath cock, canopy grip flanges—gauges 14-12.

Fig. 2—9/16-inch Bath, offset supplies N. P. 9/16-inch O. D. tube coupling nuts to bath cock with moulded soft lead cone joint which insures perfect fit on any bath cock and ½-inch S/J nuts, rubber washers, high canopy grip flanges—gauges 18-16-14.

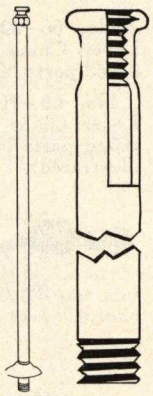


Fig. 4 Fig. 4-A

Fig. 4—⅜-inch Basin, Straight supplies, N. P. 27, 28½, 30½ inches long with ⅜x¼-inch reducing couplings and canopy grip flanges—gauges 14-12-IPS & Wt.

Fig. 4-A—⅜-inch Straight Basin Supplies—⅜-inch I. P. S. threaded at bottom end, top end tapped ¼-inch pipe thread with collar all one piece, eliminating reducing couplings. Furnished with canopy grip flanges. Gauges—No. 14, No. 12, No. IPS & Wt. Sizes—26½ inches, 28 inches, 30 inches.

Fig. 5-B—(Not illustrated)—⅜-inch Angle Basin Supplies—⅜-inch I. P. S. 6 inches to wall, 7 inches upright to top, with cast brass elbows, top end tapped ¼-inch pipe thread with collar all one piece, same as on No. 4-A. Furnished with canopy grip flanges. Gauges—No. 14, No. 12, No. IPS & Wt.

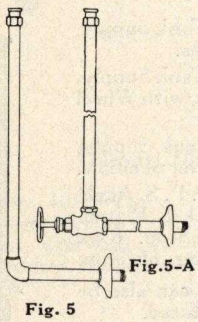


Fig. 5 Fig. 5-A

Fig. 5—⅜-inch Basin, angle supplies N. P. ⅜-inch I. P Size—size 6 inches to wall and 8 inches upright to top with cast brass elbows reducing couplings, canopy grip flanges—gauges 14-12-IPS & Wt.

Fig. 5-A—Ditto with N. P. angle stops, wheel handle, index or loose key.



Fig. 6

Fig. 6—Basin, straight supplies, N. P. Crawford connections, end reduced to 7/16-inch O. D. x 29 inches long Made in two sizes.

⅜-inch I. P. Size threaded at bottom end canopy grip flanges, cone washers—gauge 14.

9/16-inch O. D. tube with ½-inch slip joint nuts at bottom, canopy grip flanges—gauge 16.

(Also angle basin supplies with Crawford connections both ⅜-inch I. P. Size and 9/16-inch O. D. tube).



Fig. 7

Fig. 7—Low tank supply pipes, N. P. ⅜-inch I. P. Size 13/16-inch turned over collar thread one end, 19 and 21 inches long—gauges 14-12-IPS & Wt.

Fig. 7-A—9/16-inch Low Tank supply pipes. N. P. 9/16-inch O. D. tube with 13/16-inch collar and ½-inch slip joint nut. 21-inch and 19-inch long—16 gauge.

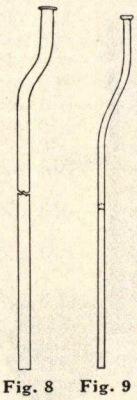


Fig. 8 Fig. 9

Fig. 8—Flush Pipes for high tanks, N. P. straight and offset—gauges 22-20-18-17, for offset pipes, specify offset center to back and diameter of collar to fit coupling nut—size 1¼-inch lengths 5, 5½, 6 feet; size 1⅜—1½-inch—length 6 feet; size 1-inch—length 4 feet.

Fig. 9—Supply Pipes for high tanks, N. P. straight and offset ⅜-inch I. P. Size gauge 14, IPS & Wt. x 7 feet.

Fig. 10—(Not illustrated)—2-inch N. P. offset with cast brass nuts and rubber washers, sizes 1 to 4 inches offset.

Fig. 11—(Not illustrated)—2-inch N. P. Elbows with cast brass nuts and rubber washers.

Sizes 2 x 4 x 6, 2 x 5 x 6, 2 x 5 x 7 inches. 2 x 6 x 8 inches.

Fig. 12—Straight Basin Wastes N. P., 1¼-inch 22 gauge, 24 inches, 26 and 30 inches long with canopy grip flanges and P. O. Plugs.

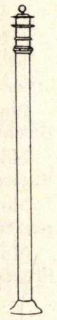


Fig. 12

Plumbers' Nickel and Chromium Plated Specialties

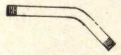


Fig. 14



Fig. 15



Fig. 16

Fig. 14—Shower arms 45-degree angle, ½-inch I. P. Size threaded both ends, 9 and 12 inches long—gauges 14-12.

Fig. 15—Shower arms offset, ½-inch I. P. Size 90-degree cast elbow, threaded both ends, 14½ inches long—gauges 14-12.

Fig. 16—Shower arms—offset ½-inch I. P. Size with 90-degree bend, threaded both ends, 14½ inches long—gauges 14-12.

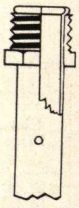


Fig. 17

Fig. 17—Circulating range boiler tubes, ⅝-inch O. D. brass tube 48 and 54 inches long, ½-inch I. P. brass bushing attached, small hole drilled in tube near top end.



Fig. 21—Portable shower, complete with curtain and 5 feet of rubber tubing and rubber faucet connection. Large shower head set at 45 degree angle — rectangular curtain rod, all metal parts with heavy nickel or chromium plated finish. Comes knock-down each one packed complete in display box with screws ready to assemble. Shower can be placed at end or at side of the tub. Gives exactly the same results as a built-in shower—yet is portable and inexpensive.

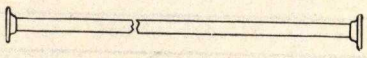


Fig. 18

Fig. 18—Shower curtain bars—straight ¾-inch O. D. and 1-inch O. D. 20 gauge 5 and 5½ feet long, cast brass round flanges.

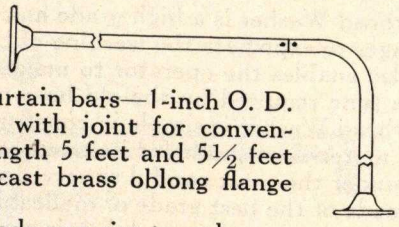


Fig. 20

Fig. 20—Corner curtain bars—1-inch O. D. Made in two pieces with joint for convenience in packing—length 5 feet and 5½ feet x 28 inches, heavy cast brass oblong flange (no ceiling support).

All curtain bars made any size to order.

Fig. 21—See above right corner.

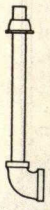


Fig. 30

Fig. 30—Handy or Speedy Angle Basin Supplies. Size 13/32-inch O. D. x 5 or 8 inches long—with cast elbow tapped ⅜-inch I. P. S. and cone shaped rubber washers and friction rings. Polished nickel or satin nickel finish.



Fig. 31

Fig. 31—Handy or Speedy Straight Basin Supplies. Size 13/32-inch O. D. x 5 or 8 inches long—furnished with reducer couplings tapped ⅜-inch I. P. S., and cone shaped rubber washers and friction rings. Polished nickel or satin nickel finish.

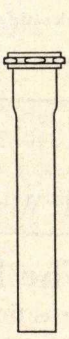


Fig. 22

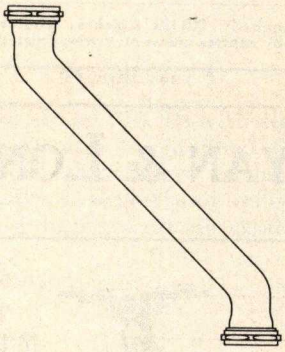


Fig. 24

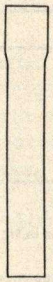


Fig. 25

Fig. 22—Trap Extension Tube with Straight Slip Joint. 1¼ inches in diameter x 6 or 8 inches long. Polished nickel or chromium plated finish. Furnished with heavy nuts and rubber washers.

Fig. 23—(Not illustrated)—Same as Fig. 22 but with 3½-inch offset x 9 inches long.

Fig. 24—Trap Offset. 1¼ inches O. D. x 10½ inches long overall. Furnished with heavy brass nuts and rubber washers. Polished nickel or chromium plated finish.

Fig. 25—Extension Tube for Soldering. 1¼ inches O. D. x 6 or 8 inches long. Polished nickel or chromium plated finish.

Fig. 26—Extension Tube for Soldering—expanded both ends. 1¼ inches O. D. x 12 inches long. Polished nickel or chromium plated finish.

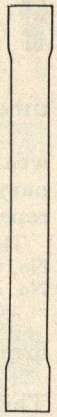
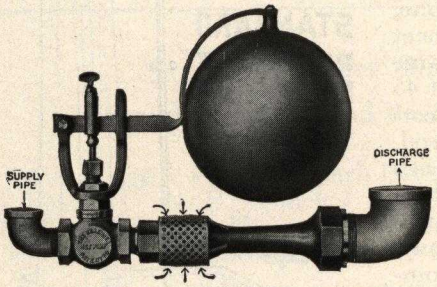


Fig. 26

THE BRAENDER DRAINER CO., INC. NEW YORK CITY

439 Fourth Avenue

The Braender Automatic Cellar Drainer and Pump



Braender Automatic Cellar Drainer and Pump



Ejector Unit

The Braender Automatic Drainer will remove water from cellars, trenches, elevator or boiler pits, and depressions of all kinds. Will remove a large amount of water and discharge it at a higher level with only a moderate amount of water pressure. It is made of brass and copper throughout. It will not corrode, and is so strongly built and so simple in operation, that it will last for several years without any attention. When ordering cellar drainers, give the following information: Approximate amount of water, in gallons, to be removed. Height to which water is to be elevated. Estimated pressure in water supply pipe or tank.

The ejector unit will be sold separately when the automatic feature is not desired.

Tables of Capacities, Pipe Connections, Etc.

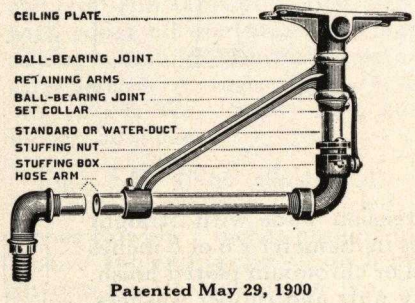
Automatic Model							Non-Automatic Model							
Size No.	Pipe Connections Inches		No. of Gallons Discharge per Hour	Weight Pounds	Approx. Shipping Weight Pounds	List Price	Size No.	Pipe Connections Inches		Gallons Discharged per Hour	Pit Required			List Price
	Inlet	Discharge						Inlet	Discharge		Length Inches	Width Inches	Depth Inches	
1	½	1	375	9¼	15¼	$28.00	1	½	1	375	11	3	3	$10.00
2	¾	1½	600	11	17	38.00	2	¾	1½	600	15	3	4	16.00
3	1	2	1275	13½	19½	48.00	3	1	2	1275	18	4	5	26.00

Dimensions of pit required: 20x12x12 inches. Drainer will work satisfactorily with 5 pounds pressure to every 1 foot in lift.
All shipments made by express unless otherwise ordered.

RYAN & LONG APPLETON, WIS.

309 West College Avenue

The Perfection Overhead Auto Washer



Patented May 29, 1900

The Perfection Overhead Washer is a high grade machine designed for use in large and small garages to expediate the washing of cars. It not only simplifies this work but also enables the operator to make a neater, more satisfactory job in half the time required by the old hose method.

The Perfection Overhead Washer is simple in construction, but most carefully made of the best materials suitable for its purpose and every Washer is assembled and tested under the most careful supervision.

All the fittings are made of the best grade of malleable iron; the ball bearing joints are of the best and great care was taken in making this selection to assure a swivel joint that would operate faultlessly over a very long period of time; the hose arm and water-duct are made from high grade galvanized pipe.

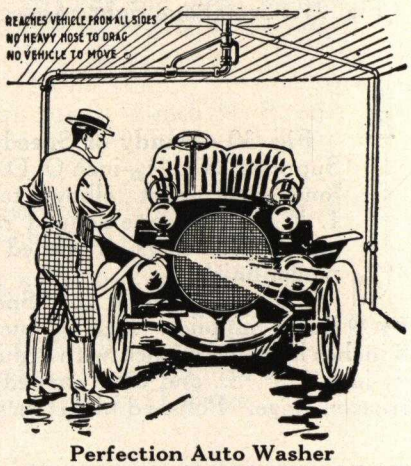
The packing in the swivel joint is the ONLY PART of the machine to wear out. We put enough packing in each Washer to last three years. Ordinary hemp packing and vaseline is used and the swivel joint is most easily repacked.

The Perfection Overhead Washer can be furnished in two sizes as listed below:
No. 1—with 4½-foot arm, list each.....$12.00
No. 2—with 6-foot arm and extra long heavy retaining arm, list each..... 14.00

The No. 1 Washer is recommended for small or private wash racks, the arm making a 9 foot circle.

For public garages, fleet garages, etc., the No. 2 Washer is recommended. This Washer makes a circle of 12 feet and can be used for washing large cars and trucks.

The Perfection Overhead Washer has been tried and proved by years of satisfactory service. The cost is reasonable and the life long.



Perfection Auto Washer

EDWARD MULLER & SON NORTH BERGEN, N. J.

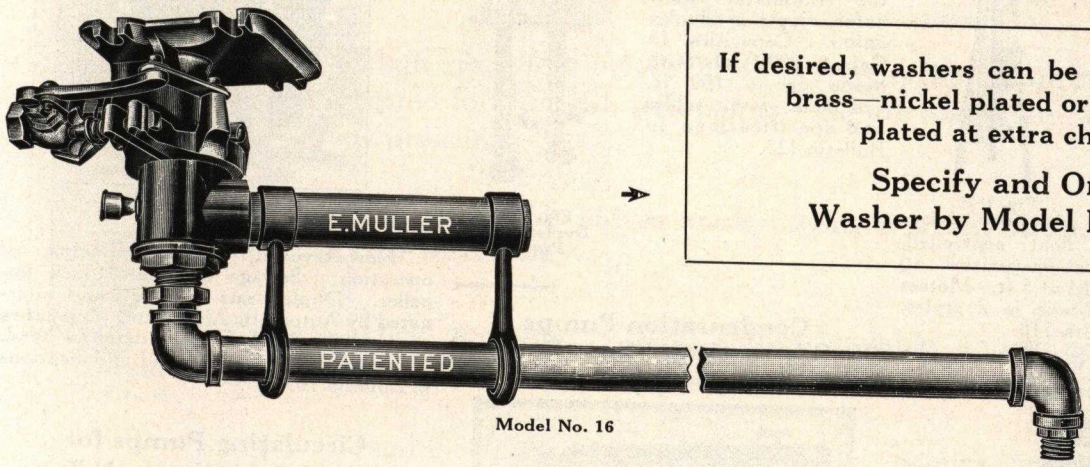
Phone—Union 7-5252

5023 Hudson Boulevard and 1306 John Street

Reliable Overhead Washers

Patented

The hose arm of the Muller Reliable Automatic Washer is made of galvanized pipe revolving in swivel bearings made of brass and bronze metal, and is supported by a shorter arm, thus taking all the strain off the swivel bearings and prevents leaking, sagging and breaking down. The washer is equipped with an automatic cut-off which permits the regulation of the supply of water from a thin stream to a powerful flow and our new valve closes absolutely without a water hammer in any high pressure pipe line.



Model No. 16

If desired, washers can be furnished in all brass—nickel plated or chromium plated at extra charge.

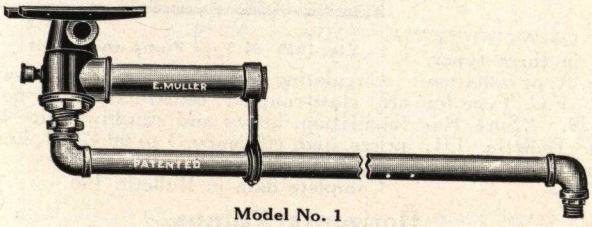
Specify and Order Washer by Model Number

Specifications

Model No. 16

Hose arm 6 feet long, diameter 1 inch, ¾-inch brass hose nipples. Supporting arm 2 feet long, 1½ inches in diameter. Projection from ceiling to supporting arm 5 inches, from ceiling to hose arm 10 inches.

List Price, pipe and fittings, galvanized (swivel bearings brass and bronze metal).....$55.00

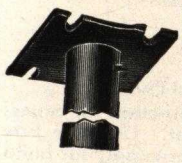


Model No. 1

Model No. 1

This model is intended to be used with separate valve placed in a convenient location on the pipe leading to and supplying the water. Hose arm 6 feet long, 1 inch diameter, ¾-inch brass hose nipple. Supporting arm 2 feet long, 1½ inches in diameter.

List Price, pipe and fittings, galvanized (swivel bearings brass and bronze metal).....$25.00



Ceiling Plate No. 5

Ceiling Plate No. 5

This plate is used for a washer to clear a beam or other obstructions, and can be furnished any length. Used in connection with No. 1, No. 4 and No. 16 washers only.

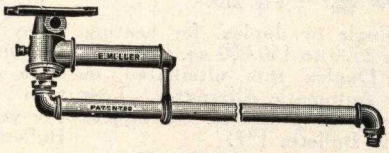
Extension Piece.....$6.00

Model No. 4

Model No. 4 is Model No. 16 with electric light.

Model No. 4 can also be supplied with an electric light attachment which attaches to the hose arm with special clamps with a socket and reflector to accommodate 2, 3 or 4 lights with necessary fittings, less bulbs.

List Price, Galvanized.....$85.00



Model No. 8

Model No. 8

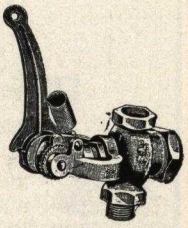
Fitted with high grade parts. Hose arm 5 feet 6 inches long, ¾-inch diameter.

List Price, pipe and fittings galvanized (all bearings brass and bronze metal).....$14.00

Model No. 9

A reliable stationary washer with automatic cut-off. Will connect to ¾-inch supply pipe. Action of automatic cut-off is positive. Valve can also be used for steam or any other purpose where an automatic valve is needed.

List Price, pipe and fittings, brass and galvanized iron.....$14.00



Patented Model No. 9

CHICAGO PUMP COMPANY — CHICAGO, ILL.

General Office and Plant—2341 Wolfram Street

Representatives in All Principal Cities — Phone—Brunswick 4110

"Little Giant" Automatic Electric Cellar Drainer

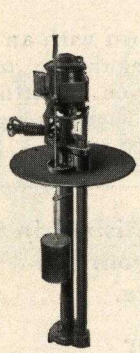


Fig. 1871 with Floor Plate



Fig. 1870 with Tripod Legs

Entirely automatic, float controlled, sturdy, quality product—capacities 10 GPM at 22 ft. to 50 GPM at 5 ft. Motors for D. C. or A. C. Made in 2 styles. Complete data in Bulletin 118.

"Condo-Vac" Return Line Vacuum Pumps

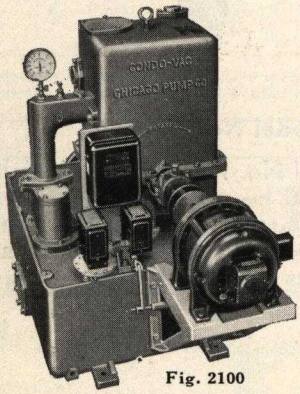


Fig. 2100

Built in single or duplex, for heating systems from 2500 to 150,000 sq. ft. direct radiation. Duplex sets alternated in operation by Automatic Alternator. Low and high discharge pressures. Complete information in Bulletin 137.

Pneumatic Water Systems

Pneumatic Water Systems are used when it is desired to supply automatically any size or style of building with water without the use of a roof tank. Used extensively for apartment, office and mercantile buildings, theaters and factories.

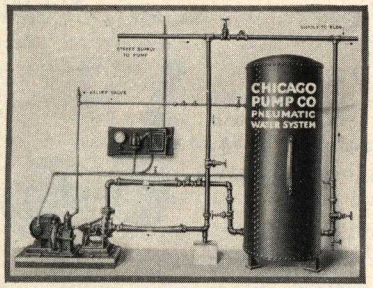


Fig. 2016 Pneumatic Water System

Units are made up to provide from 10 to 350 gallons per minute in combination with tanks having capacities from 220 to 8750 gallons.

Air compressors having pressure from 55 to 200 pounds are used in conjunction with these systems.

Ask for Bulletin No. 111.

Bilge Pumps Single and Duplex

Automatic operation, controlled by float switches, alternated by the Automatic Alternator, single or duplex units. Capacities 15 Gals. to 2000 Gals. with heads up to 100 ft. Complete data, tables and specifications in Bulletin 123.

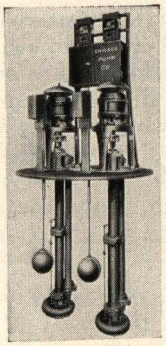


Fig. 1959 Duplex Bilge Pumps

Condensation Pumps "F-C", Vertical, "Sure Return"

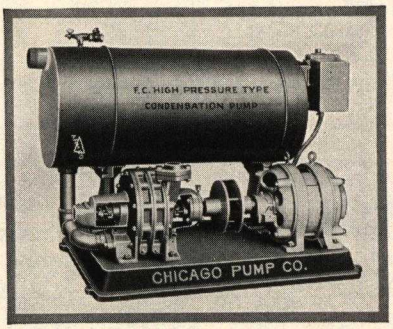


Fig. 1932

Single or duplex pumps in three types, for systems up to 50,000 sq. ft. of radiation and any pressure required. F.C. Type for large systems—Bulletin 129. "Sure Return" for small systems—Bulletin 131. For vertical, or underground installation—Bulletin 133.

"Flush-Kleen" Sewage Ejector

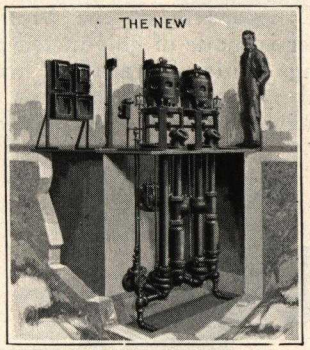


Fig. 2064

"Flow-Reversal" is the principle of operation. Sewage does not touch impeller. Duplex sets automatically alternated by Automatic Alternator. Capacities up to 2000 GPM for any required head.

Complete data, tables and specifications in Bulletin 125.

Circulating Pumps for Hot and Cold Water—N Type

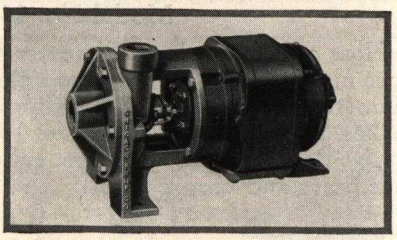


Fig. 1929—N Type Pump and Motor

Circulating pumps for hot or cold water are close-coupled construction, 3 point foundation, heavy and sturdily built—low prices, high efficiency, 3 to 60 GPM, heads 6 to 66 ft. In stock.

Complete data in Bulletin 108.

Horizontal Pumps

For Water Supply Fire, Booster, Tank Filling, Industrial Uses, Etc.

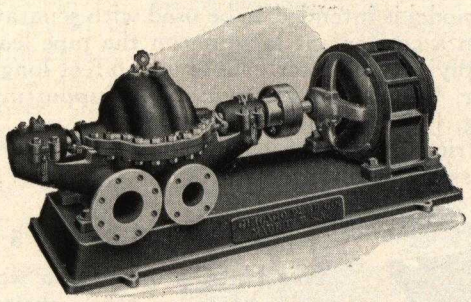


Fig. 1901 Style H. S. 2 Stage Horizontal Pump

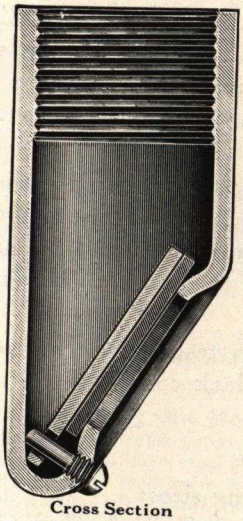
Horizontal pumps are made in single and multi-stage for capacities up to 300 gallons, and heads over 900 feet. Used for Fire, Booster, House, Tank Filling, Circulating, water-supply for buildings and towers, factory and industrial service.

Ask for Bulletins 101, 103, 105.

CLEARFLOW VALVES BERKELEY, CALIF.

1330 Second Street

Formerly KELLEY-CONNELL COMPANY



Cross Section
Fig. 300

Clearflow

Reg. Trade Mark

Dependable Foot Valves

Pat. Jan. 27, 1925, No. 1524095

High grade foot valves for all purposes, the Figure 300 being especially adapted for use with well-points. All are absolutely water tight even at low pressures.

The **only** foot valves made having a **small outside diameter** with a **full water way.**

Their operation is silent and dependable, and in normal installations these valves will last the life of the pump valves.

Figure 300 consists of all-brass body, seamless and non-corrosive, with brass flapper and vulcanized rubber facing.

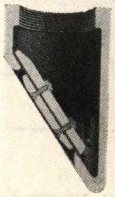


Fig. 1

Figure 1 consists of cast iron body, the 1¼ and 1½ inches being equipped with iron flappers and vulcanized rubber facings. Sizes 2 inches and up are equipped with steel flappers with bolted rubber facings. Note—Leather facings can be furnished upon request on larger sizes.

Figure 1 when equipped with unbreakable screen is known as Figure 3.



Fig. 3

List Prices and Sizes

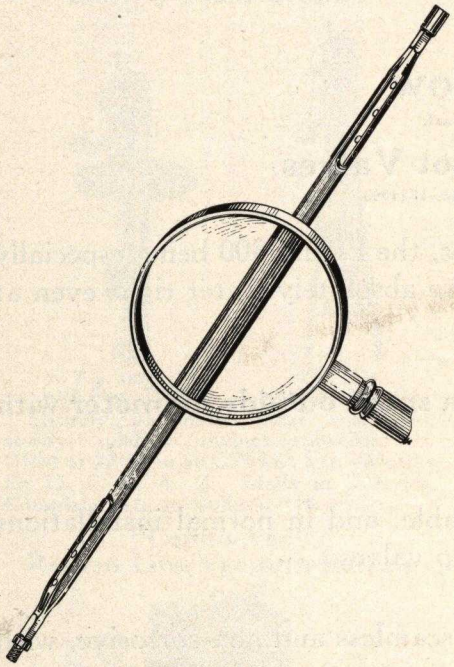
Size Standard Pipe Inches	Size O. D. Casing Inches	Price Fig. 300 Brass	Without Screen		With Screen		Outside Diameter Inches	Approx. Weight Ounces Fig. 300	Approx. Weight Pounds Fig. 1	Approx. Weight Pounds Fig. 3
			Price Fig. 1 Black	Price Fig. 1 Galv.	Price Fig. 3 Black	Price Fig. 3 Galv.				
¾	.....	$1.25	.....	.....	.....	.....	1 3/16	4	.....	.....
1	.....	1.50	.....	.....	.....	.....	1 3/8	6	.....	.....
1¼	.....	1.75	.....	.....	.....	.....	1 3/4	9	.....	.....
1¼–1½	.....	.....	$1.75	$2.00	$2.25	$2.50	2 3/8	.....	1¾	2
2	.....	.....	3.00	3.50	3.75	4.25	3 1/8	.....	3½	4½
2½	3	.....	6.00	6.75	8.00	9.00	4 3/8	.....	9	10½
3	3½	.....	8.00	9.50	9.50	10.75	4 7/8	.....	11½	13
3½	4	.....	10.00	11.75	13.00	15.00	5 5/8	.....	15½	18
4	5	.....	13.00	15.00	15.50	18.00	6 1/2	.....	20	24
5	6	.....	18.00	21.00	21.25	24.75	7 1/2	.....	31	36
6	7	.....	24.00	29.00	28.00	33.00	8 5/8	.....	46	52
7	8	.....	32.00	38.00	38.00	45.00	9 5/8	.....	60	70
8	9	.....	40.00	48.00	48.00	58.00	10 3/4	.....	78	96
.....	10	.....	45.00	51.00	54.00	61.00	11 1/8	.....	80	100

Discounts furnished on application. All prices F. O. B. Berkeley, Calif. Eight-day freight service from Berkeley to Chicago.

THE DELAWARE LUMBER CO. DELAWARE, OHIO

120-132 East Winter Street

Delaware White Ash Sucker Rods



Delaware Sucker Rods are manufactured from choice timber, principally Ohio White Ash, some Hickory being used occasionally. Special care is exercised in the manufacture of these rods. Timber is carefully selected and worked to produce straight grain wood in each rod as near as it is possible to do so. By this process of manufacture, breakage is reduced to the minimum and the rod has the strength to withstand sudden buckling and bending strains.

The Couplings are machined from first quality material, tapped so that joints may be absolutely straight; necks of full sized squares for strength against bending. Wood is shaped to fill the entire fork. Tang straps are fastened with heavy rivets staggered out of line to distribute holding strain over wide area.

All rods are carefully inspected and couplings tested. Galvanized couplings are installed with copper rivets and black couplings are installed with iron rivets.

Specifications

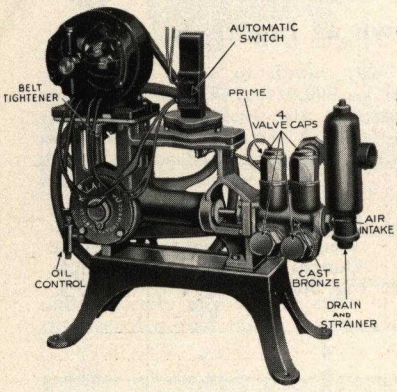
Delaware rods are manufactured in the following sizes:
Diameter, in inches: 1⅛", 1⅜", 1⅝", 1⅞", 2", 2¼", 2½", 3", 3½".
Stock Lengths: 16 feet to 22 feet.

Prices on Application

NATIONAL WATER LIFT CO. KALAMAZOO, MICH.

General Office—1611 Portage Street

Kalamazoo Pumping Water System



Designed to furnish their rated capacity of water from well, cistern, lake or stream, where the vertical lift is not over 24 feet.

Will operate on any city current or farm lighting or power system.

Constructed to operate quietly, efficiently, and when service is required, so simple that any one can repack them, because they have: A Two-Bearing Crank with Bronze Bearing. Oil agitated by Spring on Crank. Large Tobin Bronze Piston Rod. Cast Bronze Pump Cylinder bolted to the Crank Housing, which can not rust or corrode. Individual Gray Iron Caps over each Check Valve, that break when pump freezes. Extra large Check Valves, which insure quietness and Open Water Ways. Changeable Check Valve Seats. Spring over each check valve insures Positive Operation. Double Pole Switch of a reliable make, ranging from 23 to 45 pounds can be changed to meet requirements. We use only Motors of Repulsion-Induction Type, with extra high starting torque. Prices quoted are for 110-220 Volt, 60 Cycle A. C., or 32 Volt, or 115 or 230 Volt D. C. motors. If frequency and voltage are other than specified above, on motors, there will be extra charge. Regular equipment is V Type Belt. If Flat Belt is desired specify when ordering. Simple Air Recharging Valve on all Kalamazoo Pumps. Fresh Water Valve, positive and quiet in operation, easily installed, furnishes fresh water from the well. Large Self-Priming Suction Chamber insures quietness and sure flow of water. Kalamazoo Water System may be had with gasoline engine for use where electric power is not available.

Specifications and List Prices (F. O. B. Kalamazoo)

Size	Capacity No Pressure No Vacuum Gal. per Hr.	Capacity 35 lb. Pres. 22' Vacuum Gal. per Hr.	(A) Without Tank	5 Gallon Tank	20 Gallon Tank	42 Gallon Tank	82 Gallon Tank	120 Gallon Tank	Size of Well Required Inches	Smallest Tank Advised Gallons	Ship. Wt. of Pump Pounds	Size Motor H. P.	Max. Vertical Lift	Size of Pipe	
														Suction Inches	Discharge Inches
Fig. 9	259	222	$67.00	$74.00	$83.75	$88.75	$96.75	$103.75	1¼	2	110	⅙	24	¾	¾
Fig. 10	329	299	74.00	Not Advised	90.75	95.75	103.75	110.75	1¼	20	125	¼	24	1	¾
Fig. 11	405	372	81.00	Not Advised	97.75	103.75	110.75	115.75	1½	42	140	¼	24	1	¾
Fig. 12	523	443	96.50	Not Advised		119.25	126.25	131.25	2	42	180	⅓	24	1¼	1¼

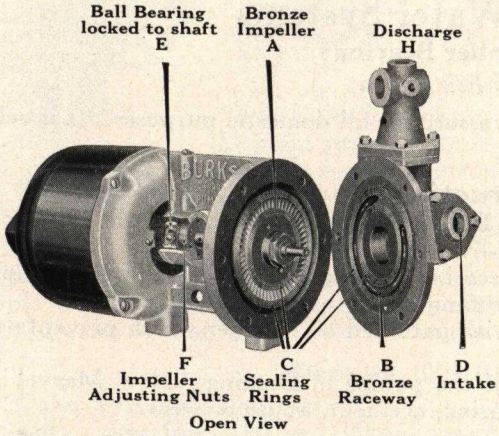
National Water Lift

A high grade Lift that is absolutely noiseless. Every working part accessible from the outside. Only one set of stuffing boxes packed from outside. Efficient strainer for soft water. Valves can be removed by simply removing caps. Made of best quality bronze. Give minimum city pressure, when writing for prices.

DECATUR PUMP CO. BURKS SUPER-TURBINE PUMPS *Only one moving part* DECATUR, ILLINOIS

Burks Super Turbine Pumps and Water Systems

Self Priming High Head Units

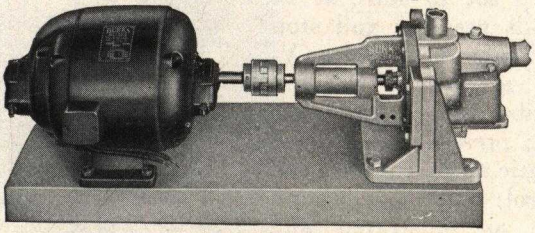


Open View

Only One Moving Part—The Impeller!

Note the extreme simplicity of this pump. Bronze impeller and raceway. Stainless steel shaft mounted in over-size ball bearings. Pumps air as well as water to full pressure rating of pump. 28-foot suction lift. Built for long life and truly dependable service. No metal-to-metal contact hence no attrition of working parts.

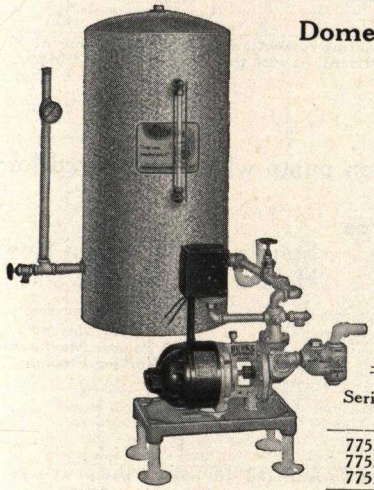
Burks Heavy Duty Pumps



Series 1100

A Powerful High Pressure Heavy Duty Pump—Perfect Hydraulic Balance!

Pressures to 100 lbs. per square inch. Capacities to 1000 G. P. H. A general utility pump suitable for dozens of service applications, including Domestic Water Systems, commercial building installations, and booster service. Equally suitable for pumping **hot water.** Ideal for returning condensate to heating boilers. Pumps air in highly satisfactory manner, hence will not vapor-bind in service. Suction lift ability greater than any pump we know of. In short, a real pump for real service where powerful, economical, and efficient performance are first considerations.



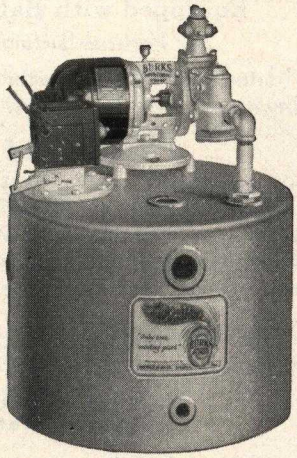
Domestic Water Supply System

A complete water system ready to attach to service water pipes and electric line. Automatically provides abundant water supply. Pressures 20 to 40 lbs. Tank sizes 20 gallons to 315 gallons.

Other Data

Series	G. P. H.	Motor Size H. P.	Suction and Discharge Inches
7752	200	1/6	3/4
7753	300	1/4	3/4
7755	450	1/3	1

Condensation Return Units



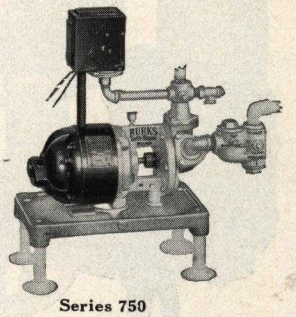
Series 4700

Will Not Steam Bind

Returns condensate to heating boiler surely and safely. Tank sizes 18, 32, and 50 gallons capacity. Working pressures zero to 100 lbs. per square inch. 75 pump, receiver, and motor combinations to handle from 2,000 to 12,000 square feet of radiation. An extremely sturdy unit built for hard service and long life. **A quality job at a reasonable cost.**

Burks Super Turbine Pumping Unit

50 pounds pressure or 115′ total head. Furnished less pressure switch, relief valve and check valve if desired. Size of base 9½" x 17". A general utility pump for handling any liquid of suitable specific gravity. Can be connected up with storage tank or controlled manually as a pumping unit.



Series 750

Figure No.	Suction and Discharge Inches	Current	H. P.	Volts	Cycles	Motor Speed	Capac. G. P. H.	Approx. Weight
752	3/4	A. C.	1/6	110–220	60	1750	200	105
752	3/4	A. C.	1/6	110–220	25	1450	175	105
752	3/4	D. C.	1/6	32 or 110	...	1750	200	105
753	3/4	A. C.	1/4	110–220	60	1750	300	110
753	3/4	A. C.	1/4	110–220	25	1450	275	110
753	3/4	D. C.	1/4	32 or 110	...	1750	300	110
755	1	A. C.	1/3	110–220	60	1750	450	115
755	1	A. C.	1/3	110–220	25	1450	400	115
755	1	D. C.	1/3	32 or 110	...	1750	450	115

Order by Figure Number and specify current characteristics of Motor.

Domestic Water Supply Systems

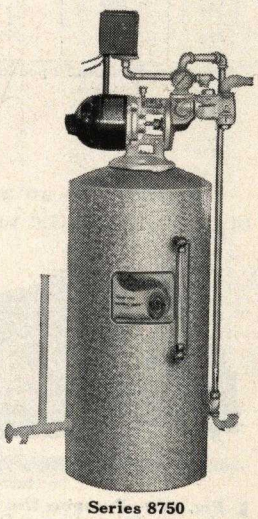
Series 8750

Vertical Galvanized, Welded Tanks. Pumping Unit Mounted on top of storage tank.

Fig. No.	Motor H. P.	Pump Capac. G. P. H.	Tank Capac. In Gals.	Tank Size
8752-A	1/6	200	20	16" x 2'
8752-B	1/6	200	42	18" x 3'
8753-A	1/4	300	20	16" x 2'
8753-B	1/4	300	42	18" x 3'
8755-A	1/3	450	20	16" x 2'
8755-B	1/3	450	42	18" x 3'

NOTE—Available in 6 sizes only.

Price quoted are for 60 cycle 110-220, 1 phase, A. C., or 32-110 D. C. Motors. Additional list for 25, 30 or 40 cycle, $10.00.



Series 8750

THE DEMING COMPANY SALEM, OHIO

14 Aetna Street

Established 1880

Export Office—75 West Street, New York

Deming "New Marvel" Water Systems

Equipped with Ball and Roller Bearings

For Vertical Suction Lift of 25 Feet or Less

The Deming "New Marvel" supplies running water under pressure for all domestic purposes. It is self-priming, self-lubricating, self-starting—self-operating in all respects.

Features of Construction

Timken Roller Bearings on the crank shaft, together with **Ball Bearings** on the crank end of the connecting rod, insure a smooth running, practically noiseless and long-lived pump.

Stainless Steel Piston Rod offers exceptional resistance to scoring, pitting and corrosion, resulting in a leakless stuffing box and longer life for the stuffing box packing. Stuffing box of nut and gland type.

Crank Shaft is made of drop forged steel and is equipped with patented oil retainer which prevents oil from working out along the shaft.

Sectional Construction: The sectionalized construction of the pumps in Deming "New Marvel" Water Systems insures low cost for repairs or replacements due to freezing, accident, abuse or wear.

For Complete Information write for Deming Water System Catalog "A"

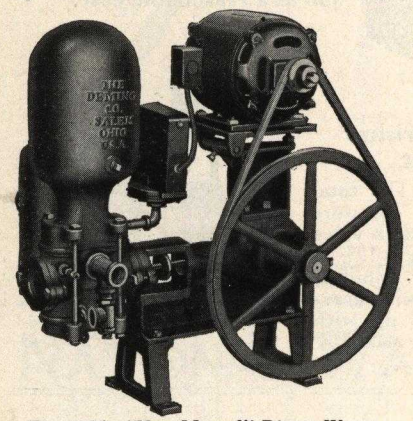


Fig. 1895—"New Marvel" Direct Water System—No Tank Necessary

Fig. 1895—Is suitable for use where water is desired direct from the source of supply and no storage capacity is wanted, as is frequently the case in summer cottages and camps, or small homes where the water requirements are limited. This unit is complete with motor, automatic pressure regulator and relief valve.

Fig. 2095—Consists of "New Marvel" Pump with electric motor; automatic switch set to start at 20 pounds pressure and stop at 40 pounds pressure; V-belt; air valve, vacuum chamber; galvanized steel tank; pressure gauge; automatic air and water level control; relief valve; complete as illustrated and ready for use as soon as connections are made to pipes and electric wires.

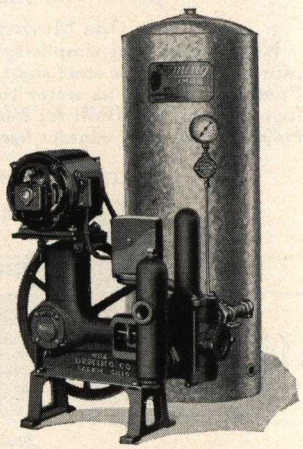


Fig. 2095—"New Marvel" Water System

Fig. 1895						Fig. 2095					
Number	Capacity of Pump Gallons Per Hour	*H. P. of Motor	PIPE SIZES Suc. Inches	PIPE SIZES Disc. Inches	Shipping Weight Pounds	Pump Capacity Gallons Per Hour	Fig. 2095 System Numbers	PIPE SIZES Suc. Inches	PIPE SIZES Disc. Inches	*H. P. Motor Furnished	Galvanized Tank Capacity Gallons	Approximate Shipping Weight Pounds
1	265	1/6	1	3/4	140	265	1 – 42	1	3/4	1/6	42	230
1 1/2	360	1/4	1	3/4	150	360	1 1/2 – 42	1	3/4	1/4	42	240
2	480	1/3	1 1/4	3/4	186	450	2 – 42	1 1/4	3/4	1/3	42	275
2 1/2	600	1/2	1 1/4	3/4	205		2 –120				120	410
						600	2 1/2 –120	1 1/4	3/4	1/2	120	430

Maximum Pressure 50 pounds.

*Motors are for 110-220 volt, 60 cycle, single phase, alternating current and will operate pumps at 50 pounds maximum pressure. If current characteristics are different, be sure to so state when ordering.

Deming "Oil-Rite" Pumping Units

For Vertical Suction Lift of 25 Feet or Less

Fig. 1809—Is an automatically oiled single cylinder, double-acting, power piston pump which is adapted for open or pneumatic tank service where larger capacity is required.

Special Features

Flood Lubrication
Timken Roller Bearings
Stainless Steel Piston Rod
Helical Cut Gearing

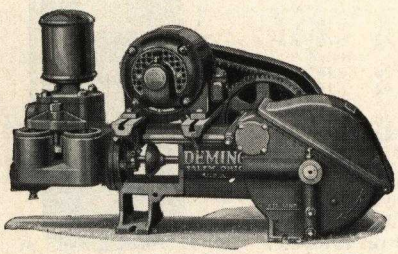


Fig. 1809—Pumping Unit with "DA" (Silent Chain) Drive

Fig. 1809

Pump Capacity Gallons Per Hour	Size of Pump Cylinder Inches	PIPE SIZES Suction, Inches	PIPE SIZES Discharge, Inches	*H. P. of Motor for 50 Pounds Maximum Working Pressure
550	2 1/2 x 3	1 1/4	1 1/4	1/2
930	3 x 3 1/2	1 1/2	1 1/2	1
2000	4 x 4 1/2	2	2	2
3000	5 x 5	2 1/2	2 1/2	3
4800	6 x 6	3	3	5

*Motors are for 110-220 volt, 60 cycle, single phase, alternating current, and will operate pumps at maximum pressure of 50 pounds. If current characteristics are different, be sure to so state when ordering.

Deming "Oil-Rite" Deep Well Working Head

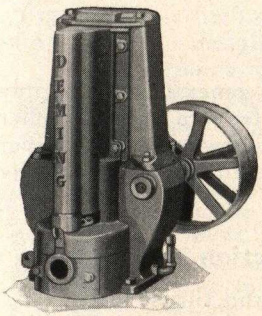


Fig. 1062—Deep Well Working Head with Tight and Loose Pulleys

Fig. 1062

For use where water level is at a greater depth than 25 feet

Because of the simplicity and ruggedness of its construction, together with the fact that the gears run in an oil bath, the Fig. 1062 "Oil-Rite" Deep Well Head will require a minimum amount of attention and operating expense, and will give long and satisfactory service. Made in four sizes, 6, 10, 14 and 18-inch stroke.

The "Oil-Rite" Feature

The lower part of the housing acts as an oil reservoir from which the main gear carries oil to the pinion and all main bearings. Force feed lubrication for connecting rod bearings and crosshead is secured by the meshing of the gear teeth.

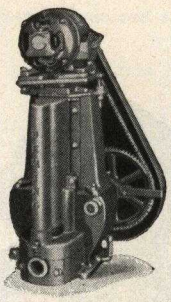


Fig. 1062—Deep Well Unit with Overhead Type "TD" (Silent Chain) Drive

Types of Drive

The overhead drive, as illustrated at the right, may be furnished in the 6 and 10-inch stroke only with "TV" (Multiple V-Belt) drive or "TD" (Silent Chain) drives. For other types of drives and illustration of side motor mounting, write for our Water System Catalog "A."

Deming "Oil-Rite" Deep Well Water Systems

The Water Systems illustrated below will supply the demand for practically all deep well installations within the capacity range from 100 to 1100 gallons of water per hour. For systems of larger capacities write for our Water System Catalog "A."

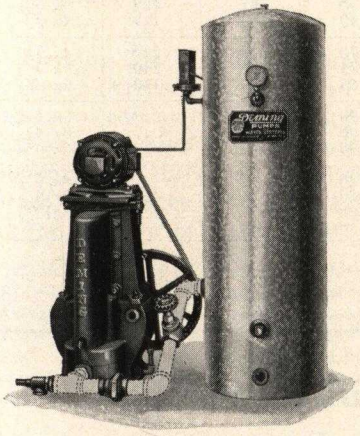


Illustration Shows System with Type "TV" (Multiple V-Belt) Also Furnished with Type "TD" (Silent Chain) Drive

Each System Includes:

One Fig. 1062 "Oil-Rite" Pumping Head with drive as selected together with air compressor.

One Galvanized Tank.
One Electric Motor.
One Artesian Brass Well Cylinder. } Of sizes as shown in table
One Automatic Pressure Switch. } below.
One Pressure Gauge.
One Automatic Air Control.
One Combination Check Valve and Union.
One Gate Valve.
One Relief Valve.

Drop pipe and sucker rod are not included because their lengths vary with each installation and they should be ordered separately to meet the requirements.

Order By System Number as Given in Table Below

PIPE SIZES		Size Wood Rod Recommended Inches	CYLINDER—Furnished Brass Lined		Gallons Per Hour	Maximum Lift in Well, Feet With 40 Lbs. Tank Pressure	*H. P. Motor Furnished	System Numbers	
Drop Pipe Inches	Discharge Pipe, Inches		Inside Diameter Inches	Outside Diameter Pipe Coupling Inches				With Type "TV" Drive (Multiple V-Belt)	With Type "TD" Drive (Silent Chain)
6-Inch Stroke Head with 42-Gallon Galvanized Tank									
1½	1	1⅛	1⅜	2 11/32	100	220	½	6101	6003
1½	1	1⅛	1⅜	2 11/32	100	375	¾	6111	6013
2	1	1⅛	1 11/16	2⅞	180	120	½	6121	6023
2	1	1⅛	1 13/16	2⅞	180	225	¾	6131	6033
2	1	1⅛	1 13/16	2⅞	180	325	1	6141	6043
2½	1	1⅛	2¼	3 9/32	275	50	½	6151	6053
2½	1	1⅛	2¼	3 9/32	275	120	¾	6161	6063
2½	1	1⅛	2¼	3 9/32	275	170	1	6171	6073
10-Inch Stroke Head with 120-Gallon Galvanized Tank									
2½	1¼	1⅜	2¼	3 9/32	405	160	1½	10101	10003
2½	1¼	1⅜	2¼	3 9/32	405	245	2	10111	10013
2½	1¼	1⅜	2¼	3 9/32	405	410	3	10311	10313
3	1¼	1⅜	2¾	4	610	75	1½	10121	10023
3	1¼	1⅜	2¾	4	610	130	2	10131	10033
3	1¼	1⅜	2¾	4	610	240	3	10331	10333
3½	1½	1⅝	3¼	4 17/32	855	30	1½	10141	10043
3½	1½	1⅝	3¼	4 17/32	855	70	2	10151	10053
3½	1½	1⅝	3¼	4 17/32	855	150	3	10351	10353
4	1½	1⅝	3¾	5 1/16	1140	30	2	10161	10063
4	1½	1⅝	3¾	5 1/16	1140	90	3	10361	10363

*Single phase, 60 cycle, 110-220 volt motor regularly furnished. If current characteristics are different, be sure to so state when ordering.
Frost-proof set length furnished at extra cost when ordered on any size. Fig. 1062—Deep well pump regardless of type of drive.
For side motor mounting, different drives, etc., write for our Water System Catalog A.
For complete description and details of foregoing pumps and water systems write for Catalog A.
For specifications of 14 and 18-inch stroke sizes of Fig. 1062—write for Catalog A.

Deming-Mueller High Efficiency-Ball Bearing Side Suction Centrifugal Pumps

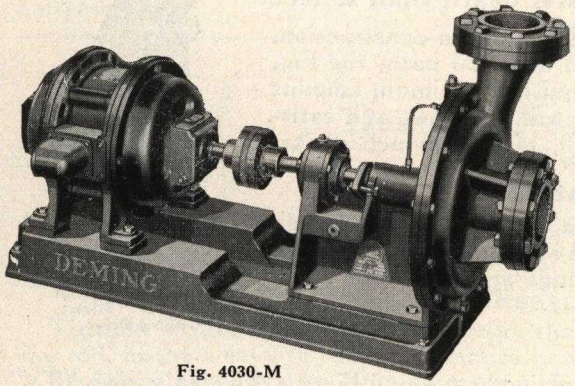


Fig. 4030-M

Can be used efficiently, not only for general water supply low or high heads, but the non-clogging feature of the impeller makes them ideal for handling screened sewage, mash, paper stock, paint, molasses, starch, crude oil, un-watering building excavations, etc.

Features of Construction

Deep groove ball bearings for radial and thrust loads.

Non-clogging, open type impeller gives exceptionally high efficiencies.

Inside bearing is a bronze bushing of the oil-less type insuring long life.

Figs. 4010, 4020, 4030 and 4040

Pump		Size Suction and Discharge Inches	Normal Capacity in U. S. Gallons per Minute					Normal Heads in Feet at					Size of Pulley Inches
Fig. No.	Size		1150 R. P. M.	1450 R. P. M.	1750 R. P. M.	2900 R. P. M.	3500 R. P. M.	1150 R. P. M.	1450 R. P. M.	1750 R. P. M.	2900 R. P. M.	3500 R. P. M.	
4010	1	1	.....	20	25	30	40	.....	18	25	80	120	4x 3¾
	1½	1½	.....	40	50	90	110	.....	22	30	75	110	4x 3¾
	2	2	.....	60	75	130	160	.....	22	30	85	125	4x 3¾
	2½	2½	.....	80	100	200	260	.....	22	30	80	115	4x 3¾
4020	1½	1½	.....	60	100	120	120	.....	50	70	150	220	4x 3¾
or	2	2	.....	120	130	160	180	.....	45	75	190	240	4x 3¾
4022	3	3	.....	200	250	300	325	.....	43	65	170	180	6x 4¾
4030	2	2	.....	150	190	.....	.....	.....	65	90	.....	.....	6x 4¾
or	3	3	.....	250	300	.....	.....	.....	60	90	.....	.....	6x 4¾
4032	4	4	.....	375	450	.....	.....	.....	60	90	.....	.....	6x 4¾
4040	5	5	500	650	800	.....	.....	50	80	120	.....	.....	8x 6¼
or	6	6	700	1000	1100	.....	.....	55	80	120	.....	.....	8x 6¼
4042	8	8	1000	1300	1400	.....	.....	50	80	120	.....	.....	11x10½

Sizes 1-inch to 2½-inch, inclusive, have screwed suction and discharge connections.
3-inch and above are flanged, and we furnish companion flanges.

For complete information ask for Catalog 4100

Deming-Mueller ¾ and 1 Inch Side Suction Centrifugal Pumps

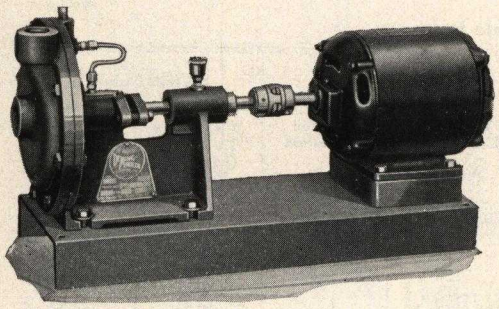


Fig. 4000-M

Fig. 4000 pumps meet the demand for low priced small size, side suction centrifugal pumps. They are suitable for low and moderate heads and for speeds up to 2000 R.P.M. They may be used for general water supply, circulating, refrigeration, irrigation, gasoline, kerosene, etc.

Features of Construction

Non-clogging impeller with the non-overloading power characteristic.

Integral support head assures perfect bearing alignment.

Die-cast renewable bearing bushings.

Ball thrust bearing takes up any slight thrust that may develop.

Fig. 4000-M No. ¾

With ¾-inch suction and discharge. Direct connected to ¼ H. P., 1750 R. P. M. Motor.

Capacity in G. P. M.	5	10	15	20	23 maximum
Total Head in Feet	25	24	21	18	14 and below

Fig. 4000-M No. 1

With 1-inch suction and discharge. Direct connected to ¼ H. P., 1750 R. P. M. Motor.

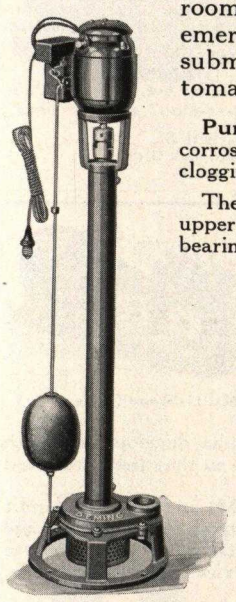
Capacity in G. P. M.	5	10	15	20	25	30 maximum
Total Head in Feet	25	24	22	20	18	14 and below

For Complete Description, Write for Bulletin No. 4100

Deming-Mueller Cellar Drainer

Fig. 4600

Fig. 4600 is a high grade moderately priced vertical pumping unit, designed for draining cellars, boiler rooms, tunnels, elevator pits and many emergency uses. The pump is of the submerged type and its operation is automatic.



Pump—The complete water end is of non-corrosive material. Impeller of the open, non-clogging type.

The stainless steel shaft is supported at upper end by a heavy type deep-groove ball bearing.

The support column is 1½-inch extra heavy galvanized steel pipe.

A quickly detachable strainer is provided made of brass perforated with four hundred 3/16-inch holes.

Motor—¼ H. P., ball bearing, Universal type with moisture-proof winding, suitable for alternating and direct current, 110-120 volt.

Switch and Starter—With thermal overload protection for low voltage in addition to float control.

The float is of heavy spun copper.

Extension Cord—Furnished with a 12-foot rubber-covered cord.

Dimensions

Over-all height, 39 inches.
Diameter of base, 9½ inches.
Casing tapped for 1¼-inch pipe connection.

Approximate shipping weight, 55 pounds.
Minimum tile diameter required with float attached, 12 inches.
Minimum tile diameter required without float attached, 10 inches.

Approximate Capacities in Gallons per Minute and Heads in Feet

Capacity, G. P. M.	5	10	15	20	25	30	35	40	45
Head, Feet	50	45	40	34	28	22	16	10	5

*The support column made of brass tubing can be furnished instead of the galvanized steel pipe at extra cost.
†220 volt motors can be furnished at extra cost.
A two-piece pit cover fitting into the bell of an 18-inch tile can be furnished at extra cost.

Deming Deep Well Turbine Pumps
With Water-lubricated Bearings

Deming Deep Well Turbine Pump is of the **water-lubricated** type, and therefore always ready for service, eliminating possibility of burning out bearings through lack of oil. Pump is dependable, durable and practically trouble-proof. Operates with little attention. Delivers abundant flow of water at little expense.



Fig. 4700

Specifications—Goodrich Cutless Rubber Bearings—superior to ordinary types, possess great resiliency, and instead of wear taking place between shaft and bearing, rubber acts as a cushion and wear is practically eliminated. Sand cannot lodge in rubber, but is depressed into it and rolled into adjacent groove by shaft, then washed to outside of bearing. This saves wear on shaft protecting sleeves.

Semi-open Type Impeller—Has parallel sealing surfaces and positively avoids any sand lock which is liable to occur with some impellers, especially in a new well. If wear takes place a slight lowering of impellers towards stationary surfaces will approach original conditions of operation. With enclosed impellers this cannot be done.

Intermediate Support Columns and Bearings—Support columns are flanged and bolted together. Between these joints intermediate bearing housings of bronze are securely fastened and Goodrich Cutless Rubber Bearings are inserted.

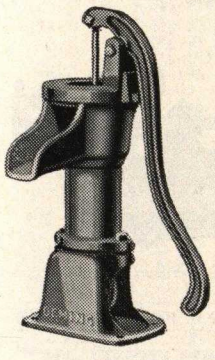
Pump and Intermediate Shafting—Impeller shaft is of stainless steel. Intermediate shafts are turned and ground steel, protected by stainless steel sleeves where rotating in Goodrich Cutless Rubber Bearings. Various lengths of shafting have threaded ends and are coupled by bronze couplings.

Pump Bowls—Made of cast iron, bolted together, and each bowl contains a Goodrich Cutless Rubber Bearing.

Support Head—Casting supports motor and is integral with discharge outlet. It carries a stuffing box of special design to work satisfactorily when water is elevated.

Electric Motor—Of vertical hollow-shaft type. Entire load of rotating element and water column is carried by a deep-groove ball bearing of ample dimensions. Any elongation of shaft can be taken care of by adjusting nut on top of motor. A safety clutch disengages motor if rotation is accidentally reversed. Motor dispenses with any complicated starting mechanism and can be thrown directly across line. Leads can be quickly connected for 220 or 440 volts.

Pump size (smallest well will enter) Inches	Outside Diameter of Pump Inches	Capacity Gallons per Minute	Pump size (smallest well will enter) Inches	Outside Diameter of Pump Inches	Capacity Gallons per Minute
6	5⅝	15 to 200	12	11½	350 to 1500
8	7½	100 to 500	14½	13¾	500 to 2000
10	9½	300 to 900			



Deming Pitcher Spout Pumps
Fig. 125

For wells 25 feet deep or less.

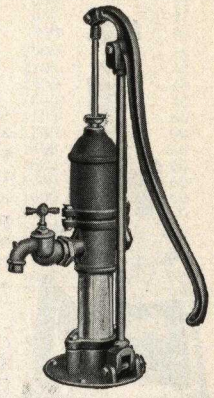
Has polished cylinder and iron valve seat. Brass valve seat furnished at additional price. Base casting tapped for iron suction pipe.

Number	Size Cylinder Inches	Fitted for Pipe Inches	Stroke Inches
2	3	1¼	4
3	3½	1¼	4
4	4	1½	4

Deming House Force Pumps
Fig. 516

Total lift and force, 50 feet.

Easy to install and operate because of bolted base and long, swinging fulcrum. Has brass tube cylinder and brass cased plunger rod. Attractively finished in blue.



Size Cylinder Inches	Suction Fitted for Pipe, Inches	Back Outlet Fitted for Pipe, Inches	Stroke Inches
3	1¼	1	6

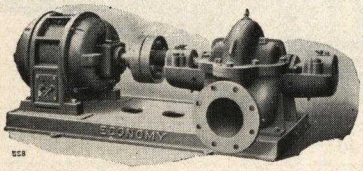
ECONOMY PUMPING MACHINERY CO. CHICAGO, ILL.

General Office—3431-3437 West 48th Place

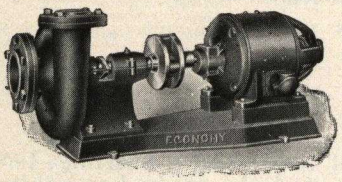
Representatives

Baltimore, Md., W. I. Collier & Co., 522 Park Ave.
Birmingham, Ala. James L. McVoy, Brown-Marx Bldg.
Boston, Mass., Thermal Engineering Co., 45 Bromfield St.
Charlotte, N. C., R-S Engineering Co., 228 Builders Bldg.
Cincinnati, Ohio, Geo. R. Murphy, 309 Main St.
Cleveland, Ohio, Geo. T. Hill, 2622 No. Moreland Blvd.
Columbus, Ohio, Jordan Equipment Co., 83 So. High Street Bldg.
Detroit, Mich., F. H. Patterson, 9201 Boleyn St.
Ft. Wayne, Ind., P. & H. Supply Co., 225 E. Columbia St.
Houston, Texas, Southern Engine & Pump Co., 900 St. Charles St.
Indianapolis, Ind., Indiana Scale & Equipment Co., 139 W. 16th St.
Kansas City, Mo., The Ritts Co., 609 Linwood Blvd.
Louisville. Ky., Heating & Power Specialty Co., Breslin Bldg.
Memphis, Tenn., Power Equipment Co., 1348 Madison Ave.
Minneapolis, Minn., Maurice H. Bjerken Co., 533 So. Seventh St.
New Orleans, La., E. W. Carr, Inc., 807 Howard Ave.
New York, N. Y., Quimby-Ryan Engineering Sales Co., 1 E. 42nd St.
Oklahoma City, Okla., Frank Loeffler Supply Co., 710 No. Hudson St.
Omaha, Neb., W. E. Hyland, Rome Hotel
Peoria, Ill., Robert P. Nailon, Lehmann Bldg.
Philadelphia, Pa., Haynes Selling Co., Inc., 1518 Fairmount Ave.
Pittsburgh, Pa., Jas. McB. Hezlep, 63 Vincennes Ave. (Oakdale, Pa.)
Plymouth, Mich., Scully Sales, 713 Ann St.
Portland, Ore., Ray Smythe, 301 Park Bldg.
Rochester, N. Y., John J. McFarlin, 54 Macbeth St.
San Francisco, Cal., J. Harry Russell, Monadnock Bldg.
Syracuse, N. Y., H. K. Ormsby, 668 Roberts Ave.

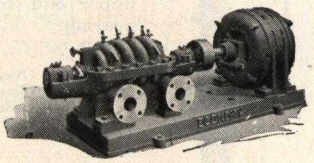
Horizontal Centrifugal Pumps



Double Suction—Single Stage (DS)



Single Side Suction (SS)



Multi-Stage (MS)

These pumps are generally used for building water supply either with roof tank or basement pneumatic pressure tank and auxiliary air compressor. They are also used for hot water circulation, air washing, brine circulation, hydraulic elevator service, high pressure boiler feeding, etc.

These pumps are made in three styles, single and double suction, single stage and multi-stage.

The double suction single stage pumps are made in all capacities or heads from 15 to 200 feet. These pumps embody up-to-date hydraulic developments with exceedingly high efficiencies. Their mechanical design is unusually rugged so that they are fitted for heavy mill service. Specifications are given in Bulletin No. 408.

High pressure pumps are made in both vertical (capacities under 50 GPM) and horizontal split case design. The horizontal split pumps have one-piece bronze diaphragm which eliminates leakage between stages. A volute or spiral in every stage results in high pump efficiency, without the use of diffusion vanes. The thrust is eliminated with a hydraulic balancing device. See Bulletin No. 406 for specifications.

The small single suction pumps are used where small capacity and head is required, or where an inexpensive installation is desired.

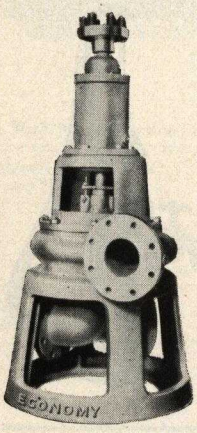
The larger single suction pumps are equipped with non-clogging impellers and are used extensively for handling liquids containing a large percentage of solids.

Selection Table—Sizes and Prices

Horizontal Centrifugal Pumps for Clear Liquids

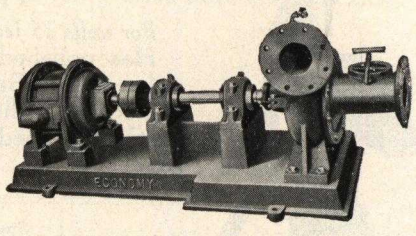
Unit No.	Capacity Gallons per Min.	Total Head in Feet, Water	Size Discharge and Type of Pump, Inches	No. of Stages	Motor H.P.	Net Trade, Price Pump and Alternating Current 60-Cy. 2 or 3 Phase Motor	Net Trade, Price Pump and Alternating Current 60-Cy. Single Phase Motor	Approx. Floor Space in Inches
DE 300	20	20	1 SS	1	¼	$ 67.00	$ 63.00	16x30
DE 301	20	45	1½SS	1	¾	118.00	121.00	16x30
DE 302	20	70	1¼MS	2	1	167.00	175.00	20x38
DE 303	20	160	1¼MS	4	3	248.00	300.00	20x55
DE 304	20	240	1¼MS	6	5	326.00	416.00	20x60
DE 305	20	375	1¼MS	3	7½	362.00	420.00	20x48
DE 310	50	20	1½SS	1	½	100.00	96.00	16x32
DE 311	50	40	1½SS	1	1	124.00	132.00	16x32
DE 312	50	70	1½SS	1	2	135.00	168.00	19x34
DE 313	50	160	1¼MS	5	5	294.00	384.00	20x58
DE 314	50	275	1¼MS	3	10	382.00	482.00	20x50
DE 315	50	450	1½MS	6	20	592.00	942.00	24x68
DE 320	80	30	2 DS	1	1½	247.00	286.00	20x46
DE 321	80	60	2 DS	1	3	251.00	303.00	20x48
DE 322	80	200	1½DS	1	10	389.00	489.00	24x44
DE 323	80	275	1½MS	4	15	460.00	699.00	24x61
DE 324	80	400	1½MS	6	20	592.00	942.00	24x68
DE 325	80	500	2½MS	8	25	840.00	1231.00	24x73
DE 330	160	20	2½DS	1	2	267.00	324.00	20x48
DE 331	160	60	2½DS	1	5	280.00	370.00	20x53
DE 332	160	150	1½DS	1	10	389.00	489.00	24x44
DE 333	160	280	2½MS	6	20	724.00	1074.00	24x67
DE 334	160	500	3 MS	6	40	1091.00	.....	34x87
DE 335	160	750	3 MS	8	60	1480.00	.....	34x97
DE 340	200	30	3 DS	1	3	$295.00	$375.00	24x49
DE 341	200	50	2½DS	1	5	323.00	450.00	20x53
DE 342	200	100	3 DS	1	10	343.00	493.00	22x58
DE 343	200	200	2½DS	1	25	516.00	907.00	25x60
DE 344	200	375	3 MS	5	30	943.00	1360.00	34x74
DE 345	200	700	3 MS	8	60	1480.00	.....	34x97
DE 350	300	30	3 DS	1	5	315.00	442.10	22x54
DE 351	300	70	3 DS	1	7½	325.00	397.00	22x56
DE 352	300	150	3 DS	1	25	560.00	951.00	26x62
DE 353	300	300	3 MS	4	40	921.00	.....	34x81
DE 354	300	450	3 MS	6	60	1317.00	.....	34x98
DE 355	300	600	3 MS	8	75	1575.00	.....	34x100
DE 360	500	20	4 DS	1	5	351.00	478.00	23x54
DE 361	500	40	4 DS	1	7½	361.00	233.00	23x54
DE 362	500	80	4 DS	1	15	411.00	650.00	23x56
DE 363	500	110	4 DS	1	20	459.00	809.00	23x58
DE 364	500	140	3 DS	1	30	627.00	1044.00	30x65
DE 365	500	200	3 DS	1	40	691.00	.....	30x68
DE 370	800	20	6 DS	1	7½	538.00	684.00	28x60
DE 371	800	40	6 DS	1	10	566.00	790.00	28x60
DE 372	800	70	5 DS	1	20	610.00	960.00	25x58
DE 373	800	110	6 DS	1	30	713.00	1130.00	28x66
DE 374	800	160	4 DS	1	50	772.00	.....	25x73
DE 375	800	200	5 DS	1	75	1098.00	.....	32x81

Prices given include across the line type motors with push button starters. If no control is required there will be a deduction from the above prices.
These pumps are made in a complete range of sizes up to 5000 g. p. m. Write factory for intermediate capacities and higher heads.



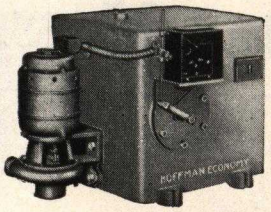
Non-Clogging Pumps

These pumps are made in both horizontal and vertical types in all capacities up to 10,000 GPM. They are used for pumping raw sewage, industrial waste, paper pulp, food pulp, etc., in sewage lift stations and in place of conveyors in industrial plants. In addition to the pumps illustrated we are in position to furnish complete sewage and process pumping equipment, consisting of tanks, valves, fittings, piping, electric motors, automatic control, etc., all factory assembled and ready for erection. Complete description and head capacity table is given in Bulletin No. 413, copy of which will be sent on application.



Size	3	4	6	8	10	12
Capacity Gallons per Minute	100 to 250	150 to 500	500 to 1300	1000 to 2500	1500 to 4000	2500 to 7000
Size of Solids which Pump will Handle	2¼	2½	3¾	5	7	9
Discharge Head in Feet	Depends upon speed, varying from 0 to 60 feet at 850 or 1150 R. P. M. and higher, with increase in speed.					
Horsepower	1½ to 5	2 to 10	5 to 25	7½ to 60	15 to 100	25 to 200

Economy Horizontal Pumps and Receivers



Low Pressure Condensation Pump

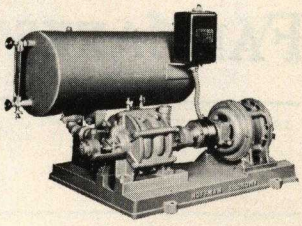
Economy Pumps and Receivers are used to improve circulation in sluggish heating systems and to drain low radiation, delivering the condensate to the boiler. Their use will cut down boiler pressure and fuel consumption.

The type CSS meets the requirements of the majority of low pressure jobs, while the type CST meets the requirements of the high pressure jobs.

These two units are sturdily and compactly designed and are made in a wide range of sizes for any capacity and pressure desired.

Duplex units consisting of single tank and two pumps with motors and control can be furnished in all sizes.

Also made in horizontal split case designs.

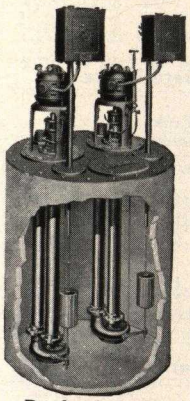


Medium and High Pressure Condensation Pumps

Selection Table—Horizontal Pumps and Receivers

Pump Size No.	Capacity in Sq. Ft. Direct C. I. Rad. or Equiv.	10 Lbs. Discharge Pressure			15 Lbs. Discharge Pressure			25 Lbs. Discharge Pressure			60 Lbs. Discharge Pressure			100 Lbs. Discharge Pressure		
		Motor Horsepower	Net Trade Prices		Motor Horsepower	Net Trade Prices		Motor Horsepower	Net Trade Prices		Motor Horsepower	Net Trade Prices		Motor Horsepower	Net Trade Prices	
			110–220 Volt 60 Cycle Single Phase Motor	110–220–440 Volt 60 Cycle 2 or 3 Phase Motor		110–220 Volt 60 Cycle Single Phase Motor	110–220–440 Volt 60 Cycle 2 or 3 Phase Motor		110–220 Volt 60 Cycle Single Phase Motor	110–220–440 Volt 60 Cycle 2 or 3 Phase Motor		110–220 Volt 60 Cycle Single Phase Motor	110–220–440 Volt 60 Cycle 2 or 3 Phase Motor		110–220 Volt 60 Cycle Single Phase Motor	110–220–440 Volt 60 Cycle 2 or 3 Phase Motor
DC- 5	1000	¼	$126.00	$135.00	½	$174.00	$189.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
DC- 6½	3000	¼	128.00	136.00	½	174.00	189.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
DC- 7½	6000	¼	138.00	146.00	½	181.00	189.00	1	$283.00	$271.00	3	$326.00	$290.00	5	$450.00	$334.00
DC- 8	10000	¼	155.00	164.00	½	190.00	200.00	1	286.00	274.00	3	334.00	297.00	5	454.00	345.00
DC- 8½	15000	½	197.00	210.00	½	197.00	210.00	1	305.00	290.00	3	355.00	316.00	5	461.00	355.00
DC- 9	20000	½	210.00	220.00	¾	223.00	235.00	1½	325.00	305.00	3	380.00	339.00	5	508.00	392.00
DC- 9½	30000	½	215.00	225.00	¾	232.00	238.00	1½	316.00	293.00	5	558.00	468.00	10	754.00	566.00
DC-10	40000	1	290.00	278.00	1½	326.00	297.00	2	342.00	307.00	5	580.00	493.00	10	757.00	595.00
DC-11	70000	2	384.00	348.00	2	384.00	348.00	3	384.00	348.00	10	692.00	500.00	15	1065.00	741.00

Economy Centrifugal Sump Pumps and Non-Clogging or Screenless Sewage Pumps (Submerged Type)



Duplex Sump Pump

Are made in all capacities and sizes in both standard and non-clogging type for handling clear seepage or unscreened sewage, rags, stones, etc. Their design is the result of many years of experience during which time numerous improvements have been made. The standard pumps are bronze fitted with raised ball thrust bearings at the floor level. They are designed to facilitate field replacement of all wearing parts.

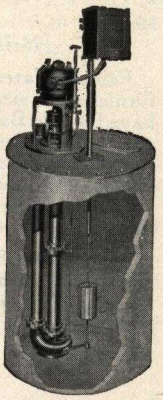
The non-clogging pumps have many exclusive features of design which make for long life and low maintenance cost, such as renewable shaft sleeves which absorb all journal wear. The ball bearing in raised mounting with micrometer adjustment makes it possible to restore the initial efficiency of the pump without parts replacement.

The motor mounting is cast integral with the pump base. A mechanical register insures alignment of pump and motor.

Duplex pumps are equipped with two floats and two sets of control equipment and mounted on a cover so that one unit may be removed from cover without disturbing the other pump. Cost of duplex units will be double the single unit price.

Detail Specifications with complete selection tables are given in our bulletins. Standard sump pumps are covered by bulletins 407, 418 and 419. Non-Clogging pumps are covered by bulletins 412 and 417.

For open shaft type pumps see preceding page.



Single Sump Pump

Selection Table Sump Pumps and Sewage Ejectors

Sizes and List Prices of Single Pumps at Various Speeds

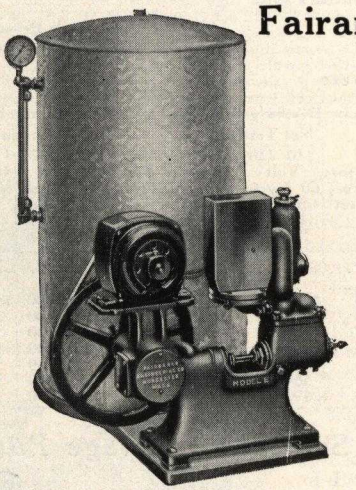
Capacity in Gallons per Minute	Total Head in Feet	1750 R. P. M.				1150 R. P. M.				850 R. P. M.				Approx. Shipping Weight Heaviest Pump	Recommended Sump Diameter	
		Pump Size and Unit Number	Motor Horsepower	Net Trade Price Complete —Automatic Float Cont.		Pump Size and Unit Number	Motor Horsepower	Net Trade Price Complete with Automatic Float Control		Pump Size and Unit Number	Motor Horsepower	Net Trade Price Complete with Automatic Float Control				
				Single Phase 60 Cycle Motor	2 or 3 Phase 60 Cycle Motor			Single Phase 60 Cycle Motor	2 or 3 Phase 60 Cycle Motor			Single Phase 60 Cycle Motor	2 or 3 Phase 60 Cycle Motor		Single	Duplex
20	15	1 –13	¼	$ 87.00	$ 87.00	1½–27	½	$165.00	$ 165.00	.....	.....	.....	.....	400	24	36
	25	1½–16	½	122.00	122.00	2½–99	¾	288.00	266.00	.....	.....	.....	.....	500	30	42
60	15	1½–60	½	122.00	122.00	2½–63	¾	235.00	213.00	.....	.....	.....	.....	500	30	42
	25	1½–50	1	211.00	193.00	2½–100	1	316.00	270.00	.....	.....	.....	.....	600	30	42
	45	1½–57	1½	232.00	201.00	.....	.....	.....	.....	.....	.....	.....	.....	650	30	42
	70	2½–114	3	356.00	294.00	.....	.....	.....	.....	.....	.....	.....	.....	900	36	42
125	10	2½–77	1	223.00	205.00	4–316	1½	410.00	320.00	4–313	1	$417.00	$331.00	1000	42	48
	25	2½–91	2	271.00	231.00	3–317	2	460.00	352.00	4–426	2	583.00	462.00	1100	42	48
	40	2½–117	3	356.00	294.00	3–421	5	562.00	399.00	4–338	5	725.00	514.00	1400	42	48
	80	4–196	7½	564.00	389.00	4–339	10	837.00	552.00	.....	.....	.....	.....	1600	42	48
175	20	3–95	2	339.00	299.00	4–325	2	460.00	340.00	4–426	2	583.00	462.00	1100	48	60
	30	3–118	3	371.00	309.00	3–327	3	482.00	373.00	4–428	3	637.00	486.00	1200	48	60
	60	3–131	5	440.00	331.00	4–431	5	637.00	474.00	.....	.....	.....	.....	1400	48	60
	80	4–191	10	628.00	419.00	4–346	10	837.00	552.00	.....	.....	.....	.....	1600	48	60
250	20	4–166	3	398.00	337.00	4–355	2	460.00	340.00	4–437	3	637.00	486.00	1200	48	60
	40	4–181	5	467.00	358.00	4–439	5	637.00	474.00	4–354	7½	838.00	560.00	1600	48	60
	60	4–193	7½	564.00	389.00	4–440	7½	705.00	520.00	.....	.....	.....	.....	1600	48	60
	70	4–203	10	628.00	419.00	4–356	10	837.00	552.00	.....	.....	.....	.....	1600	48	60
400	20	4–260	5	467.00	358.00	4–459	5	637.00	474.00	4–460	5	725.00	514.00	1800	48	60
	35	4–261	7½	564.00	389.00	4–463	7½	705.00	520.00	4–662	7½	838.00	560.00	1400	60	72
	50	4–273	10	628.00	419.00	4–464	10	837.00	552.00	.....	.....	.....	.....	1600	60	72
	60	4–274	15	751.00	461.00	4–471	15	965.00	625.00	.....	.....	.....	.....	1800	60	72
750	20	.....	.....	.....	.....	6–706	7½	895.00	710.00	6–681	7½	1028.00	750.00	2100	60	72
	40	.....	.....	.....	.....	6–684	15	1155.00	815.00	6–705	15	1375.00	873.00	2000	60	72
3000	40	.....	.....	.....	.....	.....	.....	.....	.....	10–1137	50	.....	1645.00	2400	60	72
	60	.....	.....	.....	.....	8–1152	75	.....	1950.00	10–1151	75	.....	2185.00	4000	72	120
														4400	72	120

Notes: The above prices include the pump with motor, automatic control and basin cover. Cast iron basin not included. Units under the heavy line are non-clogging or screenless sewage pumps. The units listed above and to the left of the heavy line are standard pumps, requiring the use of screens. Sizes not listed above are shown in bulletins—forwarded upon application.

FAIRBANKS ENGINEERING CO. WORCESTER, MASS.

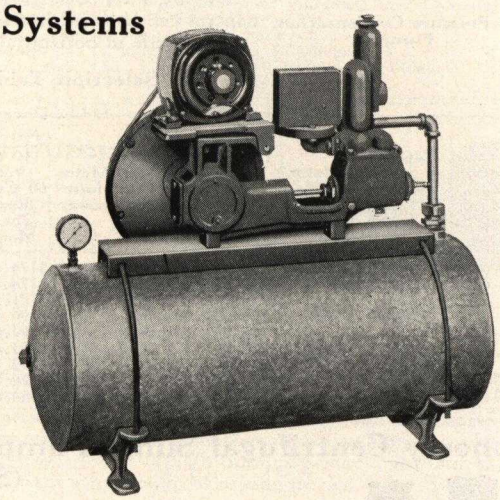
Fairart
Electric WATER SYSTEMS Automatic

Fairart Pumps and Water Systems



M-250-42—Complete Unit

Automatic Water Systems and Pumps for Shallow Wells



MH-18—Complete Unit

Fairart Water Systems provide fresh running water and can be furnished in sizes to meet all requirements. The Fairart Pumps have Double Ball-Bearing Crankshafts which are counter-balanced and which eliminate friction. They have a Ball-Bearing Connecting Rod that never needs taking up and will last a life time. The use of ball bearings assure a pump that is noiseless in operation, smooth running and saves wear and tear on motor and pump. "V" type belts are used on all models.

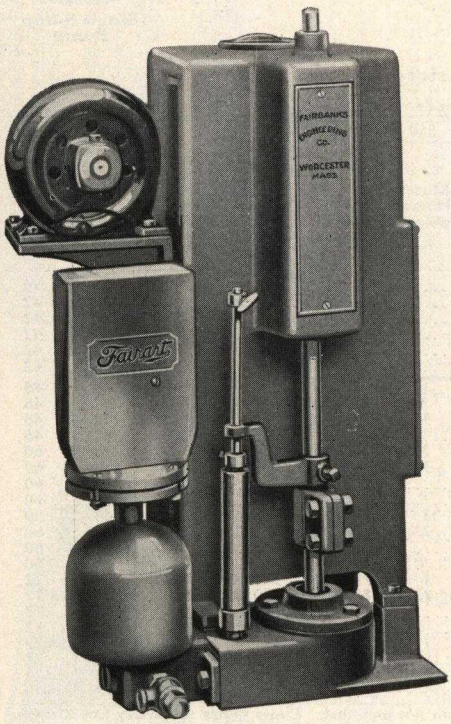
Motors are of the repulsion-induction type and are equipped with two-pole automatic pressure switch which starts and stops itself. Gasoline engines develop ¾ H. P., are air cooled and can be started with pull of a lever. When the required pressure is reached it automatically stops engine. Equipped with built-in magneto.

Shallow Wells — Complete Units

Number	Gallons per Hour	Motors H. P.	Tanks Gallons	List Price
M-250-5	250	¼	5	$68.00
M-250-42	250	¼	42	90.00
M-250-70	250	¼	70	100.00
M-250-120	250	¼	120	120.00
M-250-220	250	¼	220	150.00
M-450-42	450	⅓	42	115.00
M-450-70	450	⅓	70	125.00
M-450-120	450	⅓	120	145.00
M-450-220	450	⅓	220	175.00
MH-250-18	250	¼	18	80.00
MH-450-30	450	⅓	30	110.00

Gasoline Engine Driven Systems

Number	Gallons per Hour	Engine H. P.	Tanks Gallons	List Price
G-250-70	250	¾	70	$130.00
G-250-120	250	¾	120	170.00
G-250-220	250	¾	220	180.00
G-450-70	450	¾	70	155.00
G-450-120	450	¾	120	175.00
G-450-220	450	¾	220	205.00



M-501—Deep Well Pump

Pumps Only

M-250—Capacity 250 Gallons—¼ H. P. Motor ..... $ 64.00 List
M-450—Capacity 450 Gallons—⅓ H. P. Motor ..... 90.00 List
G-250—Capacity 250 Gallons—¾ H. P. Gas Engine ..... 110.00 List
G-450—Capacity 450 Gallons—¾ H. P. Gas Engine ..... 140.00 List

Deep Well Pumps

Fairart Deep Well Pumps are of up-to-date design and construction and are built to last a life time. They are equipped with ball bearings throughout, there is no friction loss and the full power of the motor is delivered to the well cylinder. They are fully enclosed, self oiling and quiet in operation. Made in various sizes to meet the different requirements either motor or gas engine driven.

Number	Gallons per Hour	Motor H. P.	Depth to Water	Cylinder (Open Type)	List Price
			Feet	Inches	
M-501	120	¼	75	1 3/8	$100.00
M-502	200	¼	40	1 13/16	105.00
M-503	120	⅓	150	1 3/8	110.00
M-504	200	⅓	75	1 13/16	115.00
M-505	325	⅓	40	2¼	120.00
M-506	120	½	200	1 3/8	130.00
M-507	200	½	125	1 13/16	135.00
M-508	325	½	75	2¼	140.00
G-501	120	¾	75	1 3/8	130.00
G-502	200	¾	40	1 13/16	135.00
G-508	325	¾	75	2¼	140.00

The above prices include: Working Head, Motor, Automatic Switch, Air Chamber, Well Cylinder, Auxiliary Cylinder, Relief Valve, Built-in Check Valve, Air Pump, Piston-to-Pump Rod Coupling.

Established 1848

GOULDS PUMPS, INC. SENECA FALLS, N. Y.

Branches

Atlanta, Ga., 22 Marietta Street
Boston, Mass., 194 Congress St.
Chicago, Ill., 35 East Wacker Drive
Cleveland, Ohio, Union Trust Bldg.
Houston, Texas, 1517 Second National Bank Bldg.
New York, N. Y., 16 Murray St.
Philadelphia, Pa., 111 N. Third St.
Pittsburgh, Pa., 636 Henry W. Oliver Bldg
Tulsa, Okla., 213 E. Archer St.

Representatives in All Other Principal Cities

CID Pumping Units and Complete Pressure Systems

For Shallow Well Water Supply

These units are designed for use with wells, streams, springs, lakes, or cisterns, where the total suction lift is not more than 22 feet.

The unit complete includes the new Goulds CID pump; single phase, 110-220 volt, repulsion-induction A. C. motor, with pressure switch mounted on adjustable base, and V-Belt drive.

The new CID is a horizontal, double-acting piston type pump, completely automatic-oiling, built in three capacities: 250, 500 and 750 gallons per hour.

Its four large valves, under separate openings, are easy to get at without disturbing piping connections.

The piston assembly is easily reached through end of pump and quickly removed with a screw driver.

No overhead or side castings interfere with repacking or tightening of stuffing box.

An ample size air chamber, with built-in relief valve, assures the proper air cushion and a smooth flow of water.

All CIDS are equipped with motors large enough to handle the pumps at full capacity.

Aside from the average care given any piece of machinery, the only attention the CID pump requires is a change of crankcase oil twice a year and a drop or two of oil in the motor bearings once a month.

Specifications

Capacity 250 Gallons per Hour

C-25—Complete as listed above, with $1\frac{11}{16}$ x $1\frac{1}{8}$-inch pump, $\frac{3}{4}$-inch suction and discharge, and $\frac{1}{4}$ H. P. motor.
Weight, 115 lbs.....$65.00

C-2518—Complete with pumping unit C-25, 18-gallon galvanized vertical storage tank, water level indicator, hose and fittings for connecting pump and tank when set together.
Weight, 170 lbs.....$77.00

C-2542—Complete with pumping unit C-25, 42-gallon galvanized vertical storage tank, air volume control, pressure gauge, pipe and fittings for connecting pump and tank when set together.
Weight, 205 lbs.....$85.00

Engine Driven Outfits

CID pumping units complete with air-cooled gasoline engine can be supplied in capacities of 250, 500 and 750 gallons per hour. Price $99.00 and up.

Capacity 500 Gallons per Hour

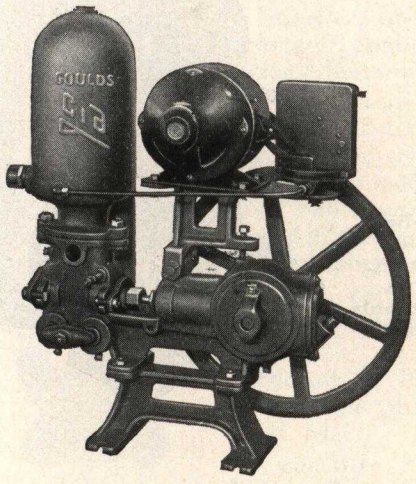
C-50—Complete as listed above with $1\frac{3}{4}$ x $2\frac{3}{16}$-inch pump, 1-inch suction and discharge, and $\frac{1}{3}$ H. P. motor.
Weight, 195 lbs.....$90.00

C-5042—Complete with pumping unit C-50, 42-gallon galvanized vertical storage tank, air volume control, pressure gauge, pipe and fittings for connecting pump and tank when set together.
Weight, 285 lbs.....$120.00

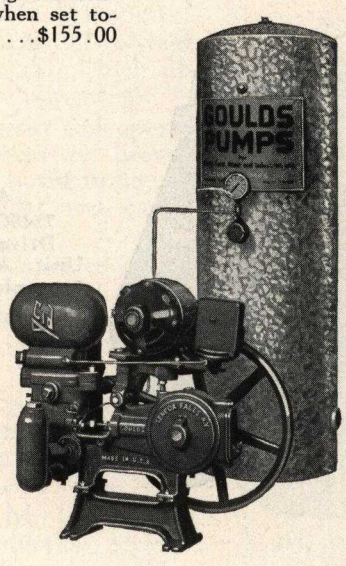
Capacity 750 Gallons per Hour

C-75—Complete as listed above with 2 x $2\frac{1}{2}$-inch pump, $1\frac{1}{4}$-inch suction and discharge, and $\frac{1}{2}$ H. P. motor.....$125.00

C-7542—Complete with pumping unit C-75, 42-gallon galvanized vertical storage tank, air volume control, pressure gauge, pipe and fittings for connecting pump and tank when set together. Weight, 365 lbs.....$155.00



At Left
C-25—Pumping Unit. The basic unit for pressure systems C-2518 and C-2542



At Right
Pressure Systems C-5042 and C-7542

See Following Page

CID Pumping Units and Complete Pressure Systems

For Deep Well Water Supply

These pumping units are for use on wells where the depth to lowest water level is more than 22 feet.

Compare the deep well CID with other pumps of similar size and price range.

This pump is no weakling. It was built to lift heavy loads. It was made compact to fit in small spaces.

Notice the differential plunger—standard equipment at no extra charge—gives smoother more even flow of water.

Patented gear mesh oil circulator bathes all working parts with a continuous flow of oil.

Link and lever construction, assures straight line plunger rod motion without using guides or tubes. No side thrust.

Double reduction gearing is accurately cut to give smooth operation and longer wear.

The pumping unit complete includes Goulds automatic-oiling deep well CID pump with 6-inch stroke; ½ H. P.; 110-220 volts, 60 cycle, single phase A. C., or 110 or 220 volts D. C. motor on adjustable top motor mounting. Suction opening 3½-inch; discharge opening 1¼-inch. Plunger rod male thread U. S. standard ⅝-inch. Gear ratio 9.1 to 1. Strokes per minute: maximum 45, minimum 30. For capacities and other motor requirements see Goulds General Catalog.

Specifications

No. 7246V—For open tank service. Complete as described above, with V-belt drive. Weight, 290 lbs.....$90.00

No. 7246VA—For pressure tank service. Same as No. 7246V, with air pump included. Weight, 295 lbs.....$94.00

No. 7246VAT—Same as No. 7246VA, with 42-gallon galvanized tank, air volume control, pressure switch, pressure gauge, two-way check valve, relief valve and galvanized piping connecting pump and tank when set together. Weight, 460 lbs.....$130.00

No. 7246C—For open tank service. Same as No. 7246V, but with Morse Silent Chain Drive. Weight, 340 lbs. Price on application

No. 7246CA—For pressure tank service. Same as No. 7246C, with air pump included. Weight, 345 lbs...Price on application

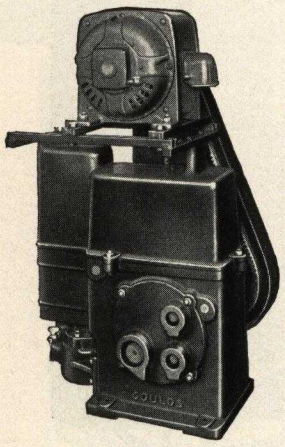
No. 7246CAT—Same as No. 7246VAT above, but with Morse Silent Chain Drive, fully guarded. Weight, 510 lbs. Price on application.

Extra for anti-freeze attachment..... 4.00

Extra for Air Chamber..... 5.00

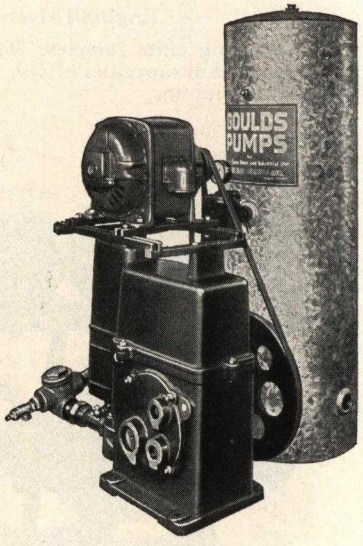
Engine Driven Outfits

Deep well pumping units complete with air-cooled gasoline engine and V-belt drive, mounted on a substantial oak plank base, with adjustable engine rails. Prices $130.00 and up.

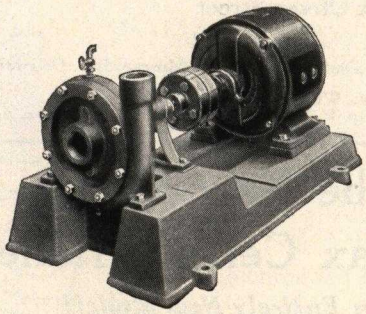


At Left
7246CA—Chain Drive Pumping Unit. Also comes in complete pressure system No. 7246CAT.

At Right
7246VAT—V-Belt Drive Complete Pressure System. Also comes in pumping unit only No. 7246V and VA.



Miscellaneous Pumps



Figs. 3004 and 3012

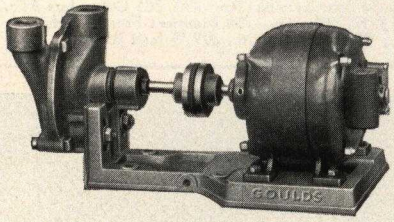


Fig. 3038

Figures 3004 and 3012 Centrifugal Pumps

Small capacity pumps for a multitude of uses including general water supply; booster service; circulating drinking water, cooling water, cutting compounds, gasoline, oil, brine; for handling chemicals, cleaning solutions, liquid food products and many other uses where a compact, direct-connected, motor-driven pump is required.

Built with flexible coupling in all four constructions: standard and bronze fitted, all iron and all bronze; and in two sizes—Fig. 3004—1½-inch and 2-inch; Fig. 3012—1-inch and 1½-inch.

Capacities up to 130 Gallons per Minute; Heads to 60 Feet.

Fig. 3012 is priced complete with motor. Fig. 3004 is priced with flexible coupling for direct connection to motor. Motor can be furnished at extra price.

Figure 3038 Centrifugal Pump

A new pump just perfected by Goulds engineers, particularly for circulating systems.

Small, compact and efficient. Standard position of discharge nozzle is top vertical, but casing can be swiveled to three other positions. Suction nozzle is in fixed top vertical position.

Pump is made in two sizes: ¾-inch with ⅙ H. P. motor; 1¼-inch with ¼ H. P. motor. Motor is 60 cycle, 1750 R. P. M., A. C.

Standard fitted or all bronze construction.

Large open type, bronze impeller, ¾-inch size will pass 3/16-inch solids; 1¼-inch size will pass ½-inch solids.

Capacities 5 to 40 G. P. M. Heads up to 20 feet.

Figure 3104 Cellar Drainer

For cellar drainage, sump or seepage service.

A portable, self-contained, vertical type centrifugal pump. Will operate in an 18-inch diameter tile or ordinary barrel set in a sump pit 2 feet deep.

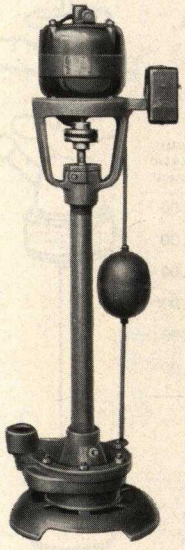


Fig. 3104

Pump is all bronze to resist corrosion. Mounted on a heavy, circular base. Needs no other support when set on bottom of sump.

Impeller, open type, has large passages capable of passing fibres, stringy material or ½-inch solids.

Lower bearing of "Bearium" metal is self-lubricating, non-scoring and non-seizing. Upper bearing is combined radial and thrust type ball-bearing. Both bearings sealed in grease. Can be lubricated through plugged, tapped openings.

Large copper float and rod. Moisture proof, enclosed float switch.

Motor: ¼ H. P., vertical, 110 volt, single phase, 60 cycle, 1750 R. P. M.

Capacities 5 to 40 G. P. M. Heads 10 to 25 feet.

Figures 3354 and 3356 Vertical Condensate Return Units

These units are for handling returns which come back at or below the floor line of boiler room. Will handle returns from 2,000 to 25,000 square feet of radiation; good for pressures up to 28 pounds.

Pump is ball-bearing, two-stage, bronze fitted centrifugal, 1-inch discharge. Requires no lubrication.

Pump shaft and float rod operate through stuffing boxes to prevent leaks. This permits outfit to be used under pressure. Float rod cannot bind.

Tank is heavy, galvanized welded steel, 24x40 inches high, with two inlets, tapped for 3-inch pipe, one 8 inches, the other 14 inches below top of tank.

Tank tapped for vent connection, and fitted with drain opening 1-inch discharge from pump to boiler. Overall height, 64⅜ inches.

Motor: 1750 R. P. M., 110-220 volt, 60 cycle repulsion-induction; ½ H. P. on Fig. 3354, 1 H. P. on Fig. 3356.

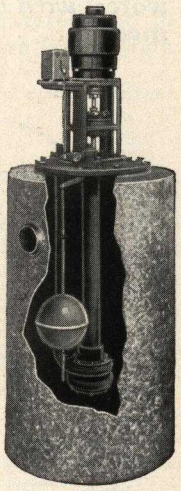


Fig. 3354

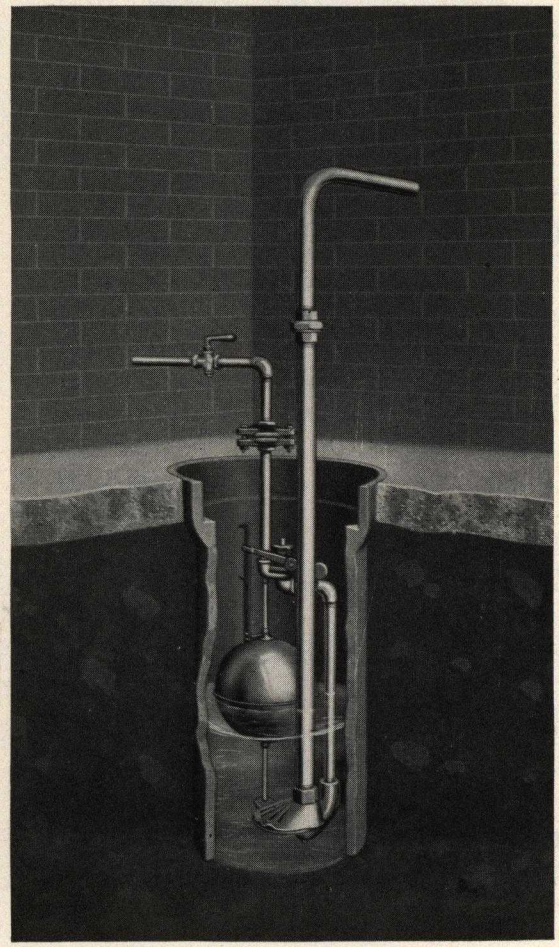
THE C. M. KEMP MFG. CO. BALTIMORE, MD.

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Boston, Mass., R. H. McCormick, Rm. 730, 285 Columbus Ave.
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Seattle, Wash., Wm. P. Horn Co., 302 Smith Tower Annex.

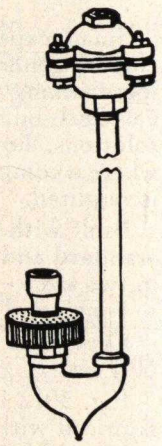


The New Model Climax Cellar Drainer

An Entirely New Model!

Simple in construction—highly efficient in operation—quickly and easily installed! No motors, springs, pistons, cup leathers, foot valves nor delicate parts subject to heavy wear. The new Climax drainer is designed for indefinite service and hard use.

Compactly built—it will easily fit a twelve-inch drain pipe—absolutely free of fittings that lessen efficiency. The ball float operates on a positive vertical guide and opens the valve only when the point is primed—no leakage of service water—no sucking until there is water to be drained. Less service water to lift a maximum amount of seepage—an economical, efficient and satisfactory drainer—the new Climax.

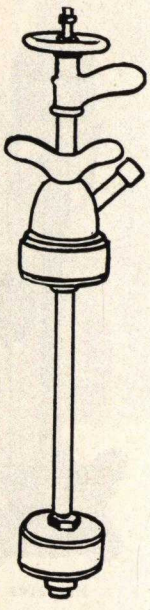


Climax Cellar Drainer without Automatic Movement

Our Engineering Department is maintained solely to help you in selecting the right test plug or cellar drainer for any job.

In ordering, state size of drainer, whether it is to be used with steam or water, with or without automatic movement.

Write us of your testing and drainage troubles. We are always glad to help you.



Capacity **List Prices**

Size	A*	Lift in Feet		Pipe Sizes, Inches		Automatic Movement	Without Automatic Movement
		3	9	Supply	Discharge		
1	20	280	62	½	1	$ 25.00	$ 15.00
	80	700	550				
2	20	520	190	¾	1¼	40.00	25.00
	80	1180	1090				
3	20	610	270	1	1½	55.00	35.00
	80	1510	1230				
4	20	820	430	1¼	2	80.00	50.00
	80	2240	1610				
5	20	1140	520	1½	2½	110.00	70.00
	80	2910	2430				
6	20	1460	700	2	3	160.00	100.00
	80	3820	2760				

*A—Water pressure in pounds.

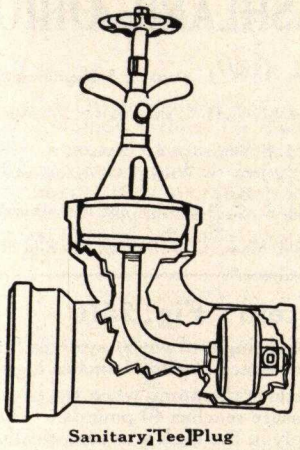
Climax Straight Double Plugs

List Price

2-Inch	3-Inch	4-Inch	5-Inch	6-Inch	8-Inch	10-Inch	12-Inch
$4.20	$5.80	$7.50	$10.00	$12.40	$18.20	$23.00	$28.10

Reducing Straight Double Plugs take price of the Large size plug.

Climax Testing Plugs



Sanitary Tee Plug

Sanitary Tee Plug

Has threaded connection for filling stack. When test is finished water will waste into sewer by relieving tension on lower plug rubber.

List Prices

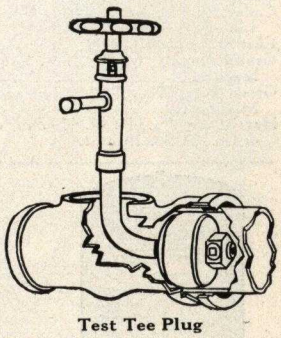
Size, Inches.	2	3	4	5	6	7	8	9	10
List Prices..	$6.18	$8.00	$10.50	$13.20	$15.90	$19.40	$24.60	$31.70	$35.20

Test Tee Plug

Has threaded connection for filling stack.

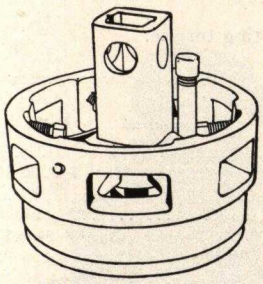
List Prices

Size, Inches.....	2	3	4	5	6	8	10
List Prices.....	$8.40	$9.40	$10.80	$11.60	$12.60	$23.50	$29.30



Test Tee Plug

High Pressure Testing Plug
For Water and Gas

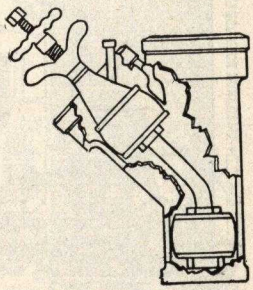


High Pressure Plug

Has threaded connection for applying Pressure to Pipe Line. The High Pressure Plug is a special type.

Water Mains—List Prices

Size, Inches.....	2	3	4	6	8	10	12
Plug.....	$ 4.30	$ 5.80	$15.90	$18.90	$26.90	$29.30	$41.40
Rubbers.....	.10	.50	.80	1.60	3.80	4.05	5.40
Size, Inches.....	14	16	18	20	24	30	36
Plug.....	$60.90	$79.80	$103.80	$121.80	$156.70	$217.90	$262.65
Rubbers.....	8.30	9.75	14.55	16.50	20.60	25.50	33.00



Y-Branch Plug

Gas Mains—List Prices

Size, Inches.....	4	6	8	10	12	14	15	16	18	20	21	22	24	30
Plug.....	$11.20	$12.55	$21.00	$27.40	$32.00	$52.00	$59.80	$66.60	$96.00	$118.50	$130.50	$143.00	$164.00	$226.20
Rubbers.....	.45	.90	2.90	5.05	7.20	7.90	8.45	9.40	12.20	14.45	15.95	16.50	18.10	20.10

Climax Y-Branch Plug

Has threaded pipe connection for filling stack. Water will waste into sewer by relieving tension on lower plug rubber.

List Prices

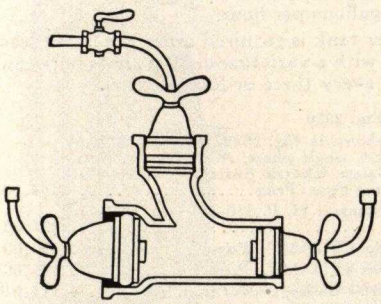
Size, Inches.....	2	3	4	5	6	7	8	10
List Prices.....	$4.40	$6.20	$8.00	$10.60	$13.20	$15.90	$19.40	$24.70

Climax Soil Pipe Plug

This Plug is guaranteed to make a perfectly tight joint in standard or extra heavy soil pipe and fittings, no matter how rough or irregular. The Wing Nut used to expand rubber is made of durable material and in convenient sizes. For Hub ends next size larger than bore of Pipe must be used.

Price List for the Climax Soil Pipe Plugs, Both Wing Nut and Ratchet Nut Style

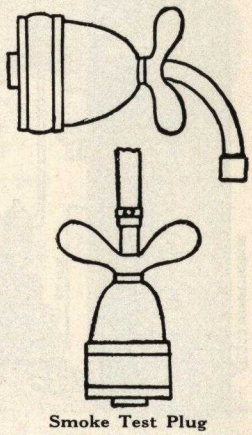
Size, Inches..	1¼	1½	2	3	3½	4	5
List Prices...	$1.40	$1.40	$1.40	$1.80	$2.50	$2.50	$2.90
Size, Inches..	5½	6	7	8	9	10	12
List Prices...	$3.40	$3.40	$4.70	$5.90	$8.00	$10.00	$21.50



Climax Soil Testing Plug with Wing Nut

Extra Rubbers

Size, Inches.	1¼	1½	2	2½	3	3½	4	4½
List Prices..	$0.07	$0.10	$0.14	$0.31	$0.34	$0.60	$0.64	$0.80
Size, Inches.	5	5½	6	7	8	9	10	12
List Prices..	$0.95	$1.05	$1.10	$1.66	$2.91	$3.94	$5.03	$7.21



Smoke Test Plug

Wrenches for Ratchet Nut Plugs, 30 cents each List. Fit all sizes

THE F. E. MYERS & BRO. COMPANY — ASHLAND, OHIO

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West Springfield, Mass., C. B. Durfee, 381 Elm St.

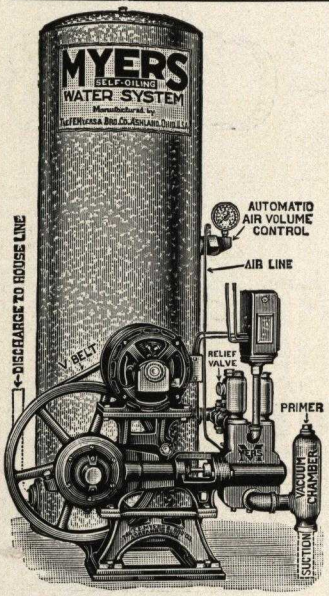


Fig. 2510

The Myers Self-Oiling Home Water System—Fig. 2510

Designed for operation from any kind of city current or from farm lighting and power systems for use in cisterns or shallow wells up to 22 feet in depth. Requires floor space 25x30x51 inches high.

Operation is controlled by any electric switch which automatically starts the pump when the pressure in the tank falls to 20 pounds and stops the pump when the pressure reaches 40 pounds. The pressure is always maintained between these two points. The air supply in the tank is automatically controlled by special air valve. All working parts are automatically lubricated by oil splash from the crank case, except the idler pulley, which has a compression grease cup.

Tank is galvanized iron, electric welded; size, 16x48 inches, 42 gallons capacity, mounted on iron bed plate, carrying both pump and tank.

Motors are of the Repulsion and Induction Type, with extra high starting torque.

Price List—Fig. 2510 Complete Water Systems

Pump No.	Capacity Gal. per Hour	Motor		Suction Inch	Discharge Inch	Tank Galvanized	Price
		H. P.	Current				
906AT	250	1/6	A. C. or D. C.	3/4	3/4	42	$85.00
909AT	340	1/4	A. C. or D. C.	1	3/4	42	90.00

Foot Valve with Brass Gauze Strainer. Price $1.30

The above Water Systems are complete with Vacuum Chamber, Relief Valve, Air Valve, Pressure Control Switch, Automatic Air and Water Volume Control Valve, Endless V-Belt, Base and Connecting Fittings.

The Myers Deep Well Water System—With Complete Automatic Control—Fig. 2700

For V-Belt or Silent Chain Drive

This System is composed of the Myers Self-Oiling Working Head with a Motor mounted on Gear Case, connected to a 42-gallon Galvanized Tank. The Air is supplied by the Air Cylinder and is controlled by the automatic air control feature which eliminates air bound or water logged tanks. The Pump is connected direct to the tank by using a Union Check Valve between Pump and Tank. The water is pumped direct into the Tank and the air is supplied by the Air Cylinder through the water line between Pump and Tank.

Price List—Fig. 2700

No. V2950AMT—Complete as shown, including ½ H. P., 110-220 volt, 60 cycle, single phase, A. C. Motor, V-Belt, Pressure Gauge, Electric Switch, Relief Valve and 42-Gallon Galvanized Tank. (Cylinder Not Included). Price $130.00
No. V2950AMTS—Same as No. V2950AMT, except with 4-foot Anti-Freezing Set Length. (Plank Base Not Included). Price 134.00
No. C2950AMT—Chain Drive, otherwise same as No. V2950AMT. Price 144.00
No. C2950AMTS—Chain Drive, otherwise same as No. V2950AMTS. Price 148.00
Any of above outfits with ⅓ H. P., A. C., deduct 10.00
Any of above outfits with ¾ H. P., 60 cycle, single phase, A. C., add to above lists 12.00
Any of above V-Belt Outfits with 1 H. P., A. C. motor, add 27.00
Any of above Chain Drive Outfits with 1 H. P., A. C. motor, add 24.00
Any of the above Outfits less Pressure Tank and Air Control, deduct from lists 11.00
Extra V-Belt for V-Belt Driven Pumps 1.80

Furnished with Stuffing Box instead of Plunger Tube if specified on order. Working Barrel or Cylinder Not Included in Above Lists.

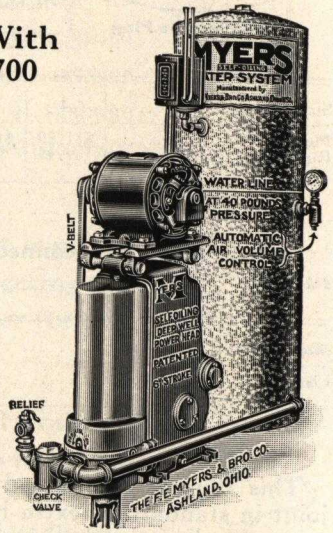


Fig. 2700

The Myers Self-Oiling Shallow Well Water System With Complete Automatic Control—Fig. 2620

A complete automatic unit for shallow wells not to exceed 24 feet in depth. Capacity—Nos. V-912AMT or C912AMT, 500 gallons per hour; Nos. V913AMT or C913AMT, 1,000 gallons per hour.

Systems are furnished with 42-gallon galvanized tanks. (Where larger tank is required order the outfit less the tank and install any size tank desired). Operation is automatic and with a variation of 20 pounds between low and high pressure needs no attention, excepting to replenish the oil every three or four months.

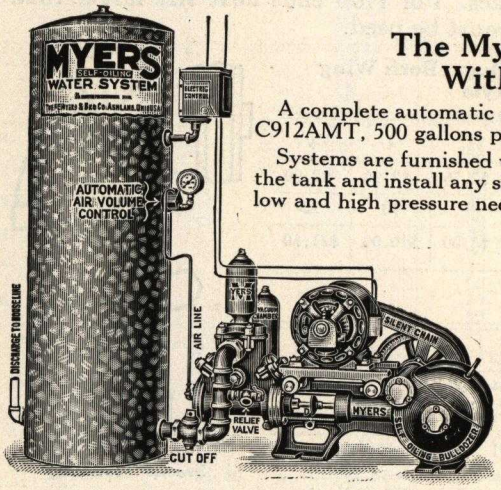


Fig. 2620

Price List—Fig. 2620

No. C912AMT—Silent Chain Drive, complete as shown in Fig. 2620, including 912AM 2½x3-inch Pump, ½ H. P. 110-220 volt, 60 cycle, single phase, A. C. Motor, Automatic Air and Water Control Valve, Pressure Gauge, Electric Switch, 42-gallon Galvanized Tank, Relief Valve, Cut-off and Connecting Pipe. Price $143.00
No. C913AMT—As above, with 913AM 3x4-inch Pump, 1 H. P. 110-220 volt, 60 cycle, single phase A. C. Motor. Price 201.00
No. V912AMT—V-Belt Drive, otherwise same as No. C912AMT. Price 130.00
No. V913AMT—V-Belt Drive, otherwise same as No. C913AMT. Price 185.00
Any of the above Outfits less Pressure Tank and Water Gauge, deduct from list 11.00

If Frequency and Voltage are other than specified on this page, there will be an extra charge. Specify current used. If A. C. give phase, frequency and voltage. If D. C. give voltage.

Myers Self-Oiling Water Systems—Fig. 2739

With 12 Gallon Galvanized Tanks

This Direct Shallow Well Water System is automatically controlled and has a real range of usefulness without the disadvantages of too frequent starting and stopping and excessive wear and tear on pump, motor and switch. Ideal for small homes, summer cottages, filling stations and numerous other places where economical and dependable service is required. Pressure range is 20 to 40 pounds. Air supply in tank is controlled by automatic air volume control. Floor space 25x25x27 inches high. Furnished complete in two sizes, 250 and 340 gallon capacities, as listed below.

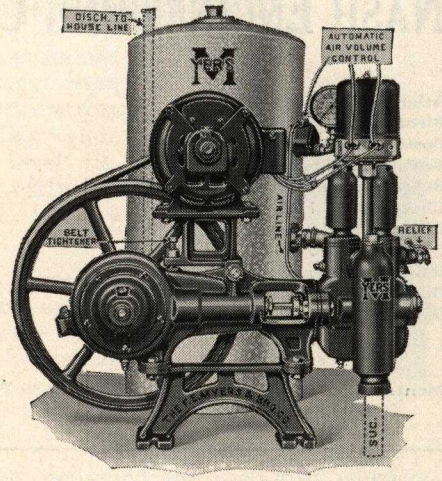


Fig. 2739

Price List—Fig. 2739—Complete Water Systems

Pump No.	Capacity Gal. per Hour	Motor H. P.	Motor Current	Suction Inch	Discharge Inch	Tank Galv.	Price
927AM	250	⅛	A.C. or D.C.	¾	¾	12 Gal.	$77.00
928AM	340	¼	A.C. or D.C.	1	¾	12 Gal.	82.00

Foot Valve with Brass Gauze Strainer. Price.....$1.30

The above Water Systems are complete with Motor, Vacuum Chamber, Relief Valve, Pressure Control Switch, Pressure Gauge, V-Type Belt, 12 Gallon Galvanized Tank, Automatic Air Volume Control and Flexible Copper Connection between Pump and Tank.

Myers Deep Well Direct Water Systems—Fig. 2741

V-Belt or Silent Chain Drive

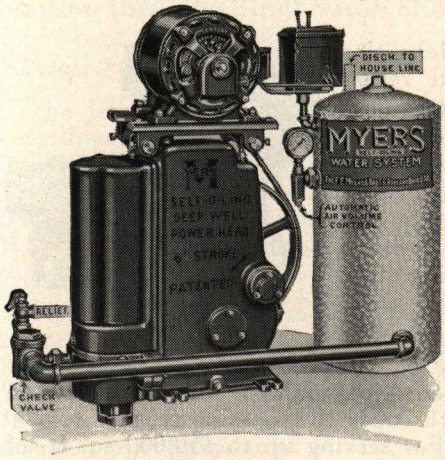


Fig. 2741

Here is a practical deep well direct water system composed of the Myers Self-Oiling Deep Well Power Pump, motor and 12 gallon tank which affords a sufficient cushion to eliminate the very objectionable feature of too frequent starting and stopping. It is completely automatic. Self-Starting, Self-Stopping, Self-Oiling. Air volume in tank is controlled by automatic air control. Furnished only in six-inch stroke size. Floor space 16x40x33 inches high. Ideal for use wherever fresh water is desired from a deep well or other source. Easy to install. Economical to operate. Dependable for service.

Price List—Fig 2741

No. V2956AM Complete as shown, including ½ H. P. 110-220 Volt, 60 Cycle, Single Phase, A. C. Motor, V-Belt, Pressure Gauge, Automatic Air Volume Control, Electric Switch, 12 Gallon Air Chamber and Relief Valve	$124.00
No. V2956AMS Same as No. V2956AM, with a 4-foot Anti-Freezing Set Length	128.00
No. C2956AM Same as No. V2956AM, except with Silent Chain Drive	138.00
No. C2956AMS Same as No. V2956AMS, except with Silent Chain Drive	142.00
If with ⅓ H. P., A. C. Motor as above, deduct from above price	10.00
If with ¾ H. P., A. C. Motor as above, add to above price	12.00
If with 1 H. P., A. C. Motor as above, V-Belt, add to above price	27.00
If with 1 H. P., A. C. Motor, Silent Chain, add to above price	24.00

Furnish d with Stuffing Box instead of Plunger Tube if specified on order.

If Frequency and Voltage are other than specified on this page, there will be an extra charge. Specify current used. If A. C. give phase, frequency and voltage. If D. C. give voltage.

Myers Shallow Well Self-Oiling Bulldozer Power Pumps—Fig. 2633

250 to 9000 Gallons of Water per Hour

Designed for pumping water from shallow wells or cisterns, ponds, streams, lakes or other sources of supply. Motor or engine operation. Silent Chain, V-Belt or Direct Drive. Furnished complete with motor as illustrated, or the bare pump with tight and loose pulleys or tight pulley only and belt tightener for flat belt drive from motor or engine. Positive self-lubrication, housed working parts, machine cut gears, oversize valves, unrestricted waterways, extra large volume, freedom from wear and breakage, extended service years. For open tank, pressure tank or other use. Complete size range and prices on request.

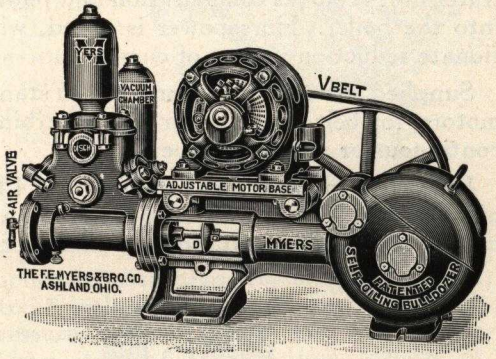


Fig. 2633

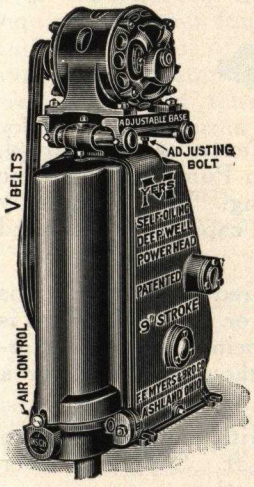


Fig. 2628

Myers Deep Well Self-Oiling Power Pumps—Fig. 2628

6, 9, 12, 18 and 24-Inch Strokes

In localities where deep well service is necessary Myers Deep Well Self-Oiling Power Pumps or Working Heads have firmly established themselves. Their performance records under almost every conceivable condition convince critical buyers of their superiority. Styles and sizes for any service up to 8-inch drop line. With or without motors. V-Belt, Flat Belt or Silent Chain Drive. Also bare pumps with tight and loose pulleys for engine or tight pulley for motor. Ideal for open tank, pressure tank or other service. Complete size range and prices on request.

NASH ENGINEERING COMPANY — SOUTH NORWALK, CONN.

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Products

Return line and air line vacuum steam heating pumps. Condensation pumps. Standard centrifugal pumps. Suction (self-priming) centrifugal pumps. Sewage ejectors. Sump pumps. Compressors and vacuum pumps for air and gases.

Return Line Vacuum Heating Pump

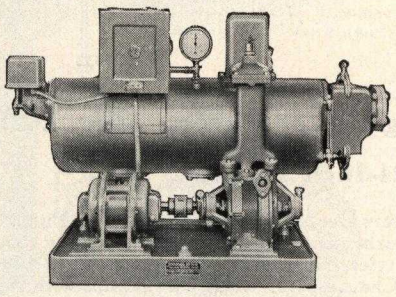
Removes air and condensation from the return lines of vacuum steam heating systems; discharges the air to the atmosphere and returns the water to the boiler.

Two independent units are combined in a single casing—an air unit and a water unit. Impellers of both are mounted on the same shaft. The pump is bronze fitted throughout.

The air unit exhausts air and vapors and delivers these to the atmosphere without back pressure. The water unit removes condensation and pumps it directly into the boiler. Horsepower is saved, with a proportionate reduction in cost of current.

Supplied either direct-connected to standard electric motors, for belt drive, or for steam turbine drive. For continuous or automatic operation.

Furnished in capacities ranging from 4 to 400 g.p.m. of water and 3 to 171 cu. ft. per min. of air. For serving up to 300,000 sq. ft. equivalent direct radiation.

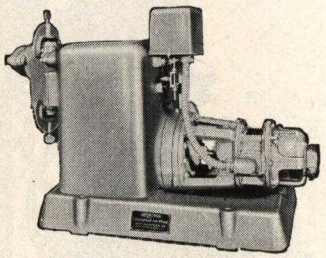


Jennings Motor-Driven Return Line Vacuum Steam Heating Pump

Condensation Pump and Receiver

Removes condensation from radiators in return line steam heating systems and pumps condensation back to the boiler.

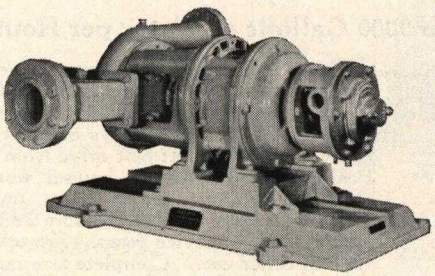
Compactness is secured by making the pump casing a part of the returns tank, and bolting the motor base to the tank. The pump can be installed in a corner against the wall.



Jennings Motor-Driven Condensation Pump

Jennings Condensation pumps are furnished in standard sizes with capacities ranging from 4 to 200 g.p.m. of water. For serving up to 150,000 sq. ft. of equivalent direct radiation.

Centrifugal Pump Operating with Suction Lift



Jennings Motor-Driven Suction (Self-Priming) Centrifugal Pump

When the Jennings Suction Centrifugal is started, the built-in Nash Hytor Vacuum Pump exhausts the air from casing and suction piping. Water is quickly drawn into the pump. Full rated capacity is delivered without delay.

Successful performance is assured under conditions where water level is likely to fall, or where air or gas is handled together with the water being pumped. Intermittent operation is possible without the need for a foot valve.

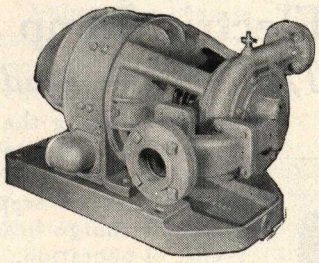
Furnished in standard sizes with capacities up to 2000 g.p.m. Heads up to 300 ft. Supplied either bronze fitted or all bronze construction.

Standard Centrifugal Pump

For all centrifugal pump services.

Compact—motor armature and pump impeller are mounted on the same shaft. Simplified—no bearings in pump casing, only one stuffing box. Accessible—pump impeller can be removed without breaking pipe connections, touching packing, or disturbing shaft alignment.

Supplied in 1, 1¼, 1½, 2, 3, 4, and 6-inch sizes. Capacities up to 2000 g.p.m. Heads up to 300 ft. Bronze fitted pump is standard construction. Also furnished in all-bronze or all-iron for special services.



Jennings Motor-Driven Standard Centrifugal Pump

Suction (Self-Priming) Sump and Sewage Pumps

Standard Type:

The Jennings Suction Sump Pump is a self-priming centrifugal pump for handling seepage water and liquids reasonably free from solids. The Suction Sewage Pump is fitted with a non-clog impeller. Both pumps are mounted entirely above the sump where they are always readily accessible. Only the suction pipe is submerged.

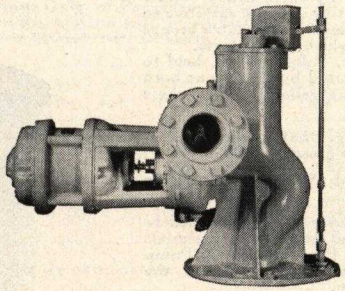
There are only two moving parts, centrifugal impeller and the vacuum priming pump rotor. Both rotate without metal-to-metal contact in the casing. Both are mounted on the same shaft that carries the rotor of the driving electric motor, making possible a single compact assembly.

Capacities and heads to meet all requirements.

Pedestal Type:

Jennings Suction Sump and Sewage Pumps, Pedestal Type, provide even greater convenience and compactness. This type pump is mounted directly on the pit cover and requires no other foundation. The base of the pump fits a standard manhole, and when bolted down forms a gas-tight cover.

Furnished only in medium capacities and heads.

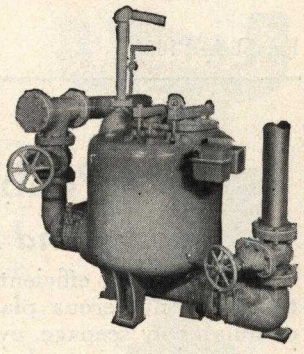


Jennings Suction (Self-Priming) Sewage Pump, Pedestal Type

Pneumatic Sewage Ejector

For pumping unscreened sewage or drainage from basements below the street sewer level; handling crude sewage from low level districts; pumping effluent, sludge and other heavy liquids.

The Jennings Sewage Ejector is of the pneumatic type. A Nash Hytor Compressor is used as the motive power to pump the accumulated sewage from a pot to the sewer.



Jennings Pneumatic Sewage Ejector

Air is compressed, delivered and used only when required. There are no air storage tanks, reciprocating air compressors, or screens. Air valves are avoided.

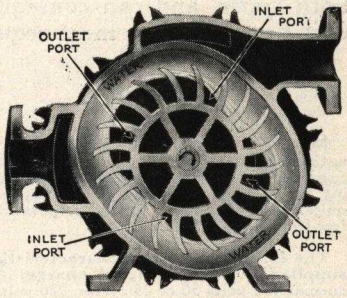
Furnished in standard sizes for handling from 30 to 1500 g.p.m. Heads up to 50 ft.

Compressor and Vacuum Pump for Air and Gases

The rotor, consisting of a cylindrical hub around the periphery of which are chambers formed by heavy shrouds cast integrally, revolves in an elliptical casing filled with water.

As the rotor turns, it carries the water with it. The water under the influence of centrifugal force, follows the contour of the casing, and alternately enters and leaves the rotor chambers.

As the water recedes from the rotor, air is drawn into the chambers through the inlet ports. As the water is forced back into the rotor, the air is compressed and then discharged through the outlet ports.



Sectional view of Nash Hytor Compressor showing principle of operation

Supplied in standard sizes for handling up to 5000 cu. ft. of air per minute. Regularly supplied for discharge pressures up to 20 lb.; vacuums up to 28 inches of mercury. For higher vacuums and pressures, special equipment will be furnished. Cast-iron standard construction. Bronze fitted, solid bronze and other alloys furnished special.

Bulletins

No. 10—Nash Hytor Compressors.
No. 11—Nash Hytor Vacuum Pumps.
No. 85—Jennings Return-Line Vacuum Heating Pumps, Manifold Type.
No. 99—Jennings Condensation Pumps.
No. 103—Jennings Sewage Ejectors, Type B.
No. 108—Jennings Sewage Ejectors, Type A.
No. 147—Jennings Vacuum Heating Pumps, Unit Type.
No. 155—Jennings Centrifugal Pumps.
No. 159—Jennings Suction Sump Pumps.
No. 161—Jennings Suction Sewage Pumps.
No. 188—Jennings Suction Sewage Pumps, Pedestal Type.

PENBERTHY INJECTOR CO. DETROIT, MICH.

1260 Holden Avenue

Established 1886

PENBERTHY PRODUCTS REG. U.S. PAT. OFF.

Canadian Plant: Windsor, Ontario

Penberthy Automatic Electric Sump Pumps

Copper and Bronze Construction Throughout—Made in Five Sizes

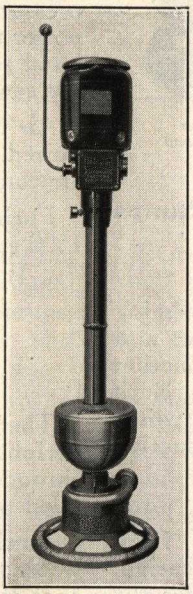
In spite of our efficient municipal sewerage systems, there are numerous places where water accumulates by seepage, overflow, flood or backing up, that cannot be drained off directly, either because the flow line of the sewer is not deep enough or because obstacles intervene between the sump and the sewer.

Among the more common instances may be mentioned the cellars of residences where no sewers exist or where the sewer line is above the basement floor level or deep cellars of buildings, boiler rooms, settling basins, fly-wheel and elevator sumps, tunnels, and scale pits.

While ordinarily this seepage may amount to only a small trickle, its flow is continuous and if neglected the accumulated water soon becomes a real menace to health and property.

To keep such places dry, the incoming water is most economically disposed of as it accumulates, either by an automatic cellar drainer (water operated) or an automatic sump pump (electrically operated). Local conditions determine which is preferable.

Penberthy manufactures a complete line of both types, and can consequently supply the unit best suited to meet requirements.



Used Wherever Water Accumulates

Conditions favoring the electric pump are: (1) For districts where city water pressure is not available, or at least very low. (2) Larger quantities of seepage water to be handled. (3) Discharge heads up to 20 feet. (4) Low cost of operation.

Installation

The automatic electric sump pump is set in a floor sump which can be conveniently made by taking a piece of 15 to 24-inch sewer crock 2 feet long. A sump cover is recommended. The pump outlet is piped to the nearest and lowest sewer or surface outlet. The motor switch cord is plugged into the nearest plug or light socket and the pump is ready for operation. Be sure that the electric current is left permanently connected to the motor switch, and that the electric current is entirely suitable to the motor furnished with the pump. General instructions accompany each pump. There are no projecting arms or delicate parts to require special supports or protection. The entire unit is simple and easily installed and operated. It meets all the requirements of the various building codes.

Specifications

Motor—Repulsion and Induction type, alternating current 110 volts, 60 cycles of exceptionally rugged construction, equipped with ball thrust bearing for vertical operation, fully complies with requirements of leading utility corporations and is free from radio interference.

The following current characteristics can be supplied at no additional charge: Alternating current 110 volts 50 or 25 cycles. 220 volts 60, 50 or 25 cycles. Direct current: 110 volts.

Add $5.00 to list price for the following current characteristics: Alternating current 110 volts 30 cycles. 220 volts 30 cycles. 250 volts 60 or 50 cycles. Direct current: 32, 220 or 250 volts.

Add $25.00 to list price for three-phase motor.

Circuit Breaker—Protects motor from damage in case of overloading or improper voltage by automatically shutting off the power. After source of trouble has been located and remedied, it is only necessary to push a small button to reset.

Mercury Switch—(Today used almost universally for automatic controls) dependable and particularly adapted to float operation; has no mechanical contacts to wear or spark, mounted in heavy bakelite box, providing complete insulation for all wiring. Switch is controlled by extra heavy copper float sliding freely on supporting column, sensitive to slightest difference in water levels, adjustable bronze ring governs water level at which pump starts.

Impeller Shaft—Bronze, fully inclosed, held to perfect alignment and supported by bearing at both ends, flexible spring coupling relieves motor shaft of sudden starting shocks.

Lubrication—All bearings that require lubrication are provided with oil or grease cups.

Material—Copper and bronze construction throughout.

Sump Cover—A sump cover is recommended to exclude ashes, coal dust and other solid materials from accumulating in sump. Penberthy Sump Pump Covers provide proper working clearance for the automatic control mechanism.

Sump Pump Covers

List Prices, Sizes, etc.

Cover No.	List Price	Diameter Outside Inches	Shipping Weight Boxed Pounds
1	$ 8.50	19¾	28
2	12.00	24	47
3	15.00	27½	58



List Prices, Sizes, Pipe Connections, Capacities, Etc.

Size No.	List Prices	Pipe Connections, In.	Sump Depth, Feet	Height of Pump Ft.	Height of Pump In.	*Approximate Capacity, Gallons per Hour Against Discharge Head of 1 Foot	5 Feet	10 Feet	15 Feet	20 Feet	Operation Cost per Hour, Cts.	Size Motor, h. p.	Weight Boxed, Pounds
1K.....	$65.00	1¼	2	3	7¼	3600	3200	2600	1900	1000	1.3	¼	102
2K.....	85.00	1¼	3	4	7¼	3600	3200	2600	1900	1000	1.3	¼	115
3K.....	100.00	1¼	4	5	6	3600	3200	2600	1900	1000	1.3	¼	128
4K.....	125.00	1¼	6½	7	11	3600	3200	2600	1900	1000	1.3	¼	149
5K.....	150.00	1¼	8½	9	10	3600	3200	2600	1900	1000	1.3	¼	195

*To determine total discharge head, measure vertical distance, or elevation in feet from bottom of sump to highest point in discharge line, and add one-foot for each 30 feet of horizontal pipe and one-third foot for each elbow.

Above table applies to 60 cycles Alternating Current and Direct Current only. Capacity and discharge head is slightly reduced when pump is equipped with 50 or 25 cycle motor.



Cut. No. 381—Model R
Sizes 1 and 2

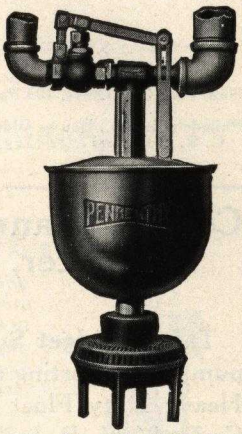
Penberthy Automatic Cellar Drainers

Water Operated

Efficient—Economical—Reliable—Durable

The Penberthy Automatic Cellar Drainer has been on the market for years and is of distinct service for installations, such as office buildings, residence or factory basements, sumps, tanks, settling basins, flywheel, elevator, coal and scale pits or wherever it is desired to remove seepage, flood or back water from point below the natural drainage level of sewer.

For conditions such as these the Penberthy Automatic Cellar Drainer offers a desirable solution as it operates by city water pressure and the drainer itself is ideally constructed to occupy the least possible space. It is also entirely automatic and requires no attention after installation.



Cut No. 367—Model L
Sizes 3, 4 and 5

Table of Capacities at Different Pressures and Elevations, Pipe Sizes, etc., Model "R"

Size and Model	Pipe Sizes		Working Head in Ft.	Maximum Stock Drainer Capacities from Sump in Gallons per Hour at 10 to 150 Pounds										
	Supply In.	Discharge In.		10	15	20	25	30	40	60	80	100	120	150
No. 1 Model R	½	1	3	80	210	300	340	400	510	700	720	700	660	600
			6	...	90	140	240	300	390	570	670	690	650	600
			9	...	...	90	150	210	330	480	620	660	640	600
			12	...	...	...	100	150	220	390	550	630	630	600
			15	...	...	...	...	90	190	300	450	600	620	600
			18	...	...	...	...	...	120	250	320	550	610	600
No. 2 Model R	¾	1¼	3	190	390	550	620	750	910	1180	1240	1220	1170	1100
			6	...	210	340	420	600	750	1020	1140	1200	1130	1100
			9	...	...	210	300	380	540	900	1090	1150	1090	1100
			12	...	...	...	210	300	420	780	1020	1110	1060	1100
			15	...	...	...	...	210	370	570	940	1050	1030	1100
			18	...	...	...	...	...	300	510	850	970	1000	1100

Unless otherwise specified, the model "R" drainer (see cut No. 381) is supplied and used for all conditions as printed in bold faced type as shown in the table of capacities. (See table above.)

For conditions below bold face type we furnish a low pressure drainer.

The model "R" drainer requires 5-pound water pressure or more for each one-foot of elevation, while the low pressure drainer will work on 2-pound to 4-pound per foot of elevation, which we can supply from factory.

Made entirely from Brass and Copper.

Circulars mailed on request.

Working Head in Feet	Approximate Gals. of Pressure Water Required to Pump One Gal. from Sump with a Model "R" Drainer									
	10 lbs.	15 lbs.	20 lbs.	30 lbs.	40 lbs.	60 lbs.	80 lbs.	100 lbs.	120 lbs.	150 lbs.
3	.80	.50	.40	.38	.35	.30	.30	.35	.40	.58
6	.....	.90	.75	.50	.42	.38	.38	.40	.41	.55
9	.....	.....	1.00	.65	.50	.45	.40	.41	.42	.52
12	.....	.....	.....	.90	.65	.52	.45	.42	.43	.48
15	.....	.....	.....	1.20	.85	.60	.50	.43	.44	.45
18	.....	.....	.....	.....	1.00	.70	.55	.45	.45	.43

For conditions below bold face type we can furnish a special Drainer.

List Price—Model "R"—See Cut No. 381

Size No. Model "R"	1	2	3	4	5
List Price.....	$25.00	$40.00	.....	.....	.....

The compactness of this drainer (see cut No. 381) makes it only necessary to construct a very small sump. This effects quite a saving in cost of installation as well as space. The whole drainer is under the floor level, yet all parts are instantly accessible, without disconnecting pipes or removing drainer. All working parts are conveniently located on top.

Table of Capacities at Different Pressures and Elevations Dimensions and Pipe Sizes, Model "L"

Size and Model	Pipe Sizes, In.		Working Head in Ft.	Actual Capacities in Gals. of Water per Hour taken from Sump and not Total Amount of Discharged Water			
	Supply	Discharge and Suction		At 25 Lbs. Will Elevate	At 40 Lbs. Will Elevate	At 60 Lbs. Will Elevate	At 80 Lbs. Will Elevate
No. 3 Model "L"	1	1½	3	660	1100	1440	1650
			6	520	860	1230	1440
			9	.....	720	1050	1320
			12	.....	.....	840	1040
			18	.....	.....	.....	760
No. 4 Model "L"	1¼	2	3	960	1600	2020	2400
			6	760	1240	1880	1980
			9	.....	1040	1600	1800
			12	.....	.....	1280	1440
			18	.....	.....	.....	1050
No. 5 Model "L"	1½	2½	3	1280	2100	2700	3200
			6	1000	1620	2300	2820
			9	.....	1260	1960	2600
			12	.....	.....	1560	2060
			18	.....	.....	.....	1500

SPECIAL NOTICE: The above capacities are the actual capacities of water taken from sump and not the combined discharge of operating and drainage water as given in most tables. For higher elevations than shown above, special drainers can be made.

List Price—Model "L"—See Cut No. 367

Size No. Model "L"	1	2	*3	*4	*5
List Price.....	.....	.....	$55.00	$80.00	$110.00

*Made in size Nos. 3, 4, 5 only.

List Price—Non-Automatic

Size No.	1	2	3	4	5
List Price.....	$15.00	$25.00	$35.00	$50.00	$70.00

Capacities, pipe connections, etc., same as other models listed above.

Other Penberthy Products

"Penberthy" Automatic Injectors

Also manufacturers of Swimming Pool Heaters; "XL-96" Ejectors; Safeguard Water and Oil Gages; Water Heaters; Oil Cups; Grease Cups; Air Cocks; Sump Covers.

TABER PUMP COMPANY BUFFALO, N. Y.

Factory and Main Office—290 Elm St.,

Established 1859 and building good pumps to suit the job ever since.

New York City Office, 103 Park Ave.

Philadelphia, Pa., Bourse Bldg., G. R. Chambers

TABER

St. Louis, Mo., Granite Bldg., Engineering & Equipment Co.

San Francisco, Cal., 593 Market St., M. J. Haley

Cellar, Pit and Flood Water DRAINAGE PUMPS, Sewer, Booster, Hot and Ice Water Circulating Pumps, Centrifugal and Rotary

Taber Midget Sump Pump (Fig.19411). A ruggedly constructed bronze fitted pump. Supporting column is cast iron. Cover plate 24" dia. to fit an 18" tile. Penn Heavy Duty Float Switch. Brass Float Rod and Copper Float. The motor is a G. E. ¼ H. P. ball bearing moistureproof repulsion-induction type. The pump is complete with electric cord, plug and special fuse adapter and fuse plug. Built to give the best service for many years without servicing. See Rating Table, Fig. 19411.

Taber Standard Sump Pump (Fig. 1162-A single—Fig. 1161 duplex). Self contained units suspended from substantial cover plates. Duplex units suspended from auxiliary elliptical plates mounted on main cover plates. Built for pits 5 feet deep which allows for 3" of clearance at the bottom. Pumps can be built for other diameters or for special depths at nominal additional cost. For Sewage, pumps are provided with wide open impellers. See the following Rating Table:

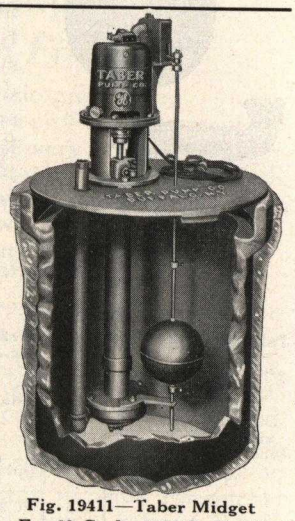


Fig. 19411—Taber Midget For 60-Cycle, 1750 R. P. M.

Gal. per min.....	10	15	20	25
Total head, feet...	23	21	20	18

Net Weight—132 Pounds

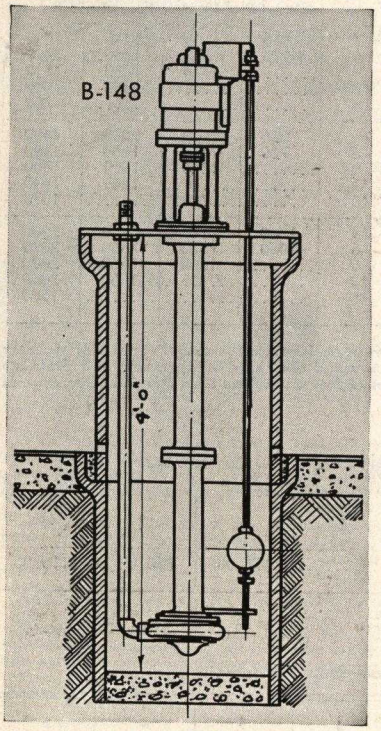


Fig. B-148—Type ALC Pump

Taber ALC Pump

←This pump is designed to fit two 18-inch tiles as shown in Fig. B-148. The tiles can be submerged completely or one tile may be placed above floor level to give floor water protection. Ratings:

Motor, ½ H.P.
1750 R.P.M.
1¼-inch discharge.

G.P.M.	Head in Feet
40	20
30	24
20	26

Send for complete information and helpful suggestions. Ask for Bulletin SS-629.

Type No.	Cap., gal. per Min.	Head, Feet	Discharge, Inches	Cover Plate Diam., In.	Motor H.P.	Approx. Ship. Wt., Pounds
Single Units—1750 R. P. M., 60-Cycle and D. C.						
AL- 25-1	25	10	1	24	¼	272
AL- 25-2		20			¼	272
AL- 50-1	50	10	1¼	32	½	350
AL- 50-2		20			¾	350
AL- 50-3		25			1	430
AL- 75-1	75	10	1½	36	¾	430
AL- 75-2		20			1	436
AL- 75-3		25			1½	436
AL-100-1	100	10	2	36	1	481
AL-100-2		20			1½	481
AL-100-3		30			1½	517
AL-150-1	150	10	2½	36	1½	562
AL-150-2		20			1½	562
AL-150-3		30			2	607
AL-200-1	200	10	3	36	2	652
AL-200-2		20			2	652
AL-200-3		30			3	675
AL-300-1	300	10	4	36	3	730
AL-300-2		20			3	730
AL-300-3		30			5	772
Duplex Units—1750 R. P. M. 60-Cycle and D. C.						
XL- 25-1	25	10	1	48	¼	610
XL- 25-2		20			¼	610
XL- 50-1	50	10	1¼	48	½	850
XL- 50-2		20			¾	850
XL- 50-3		25			1	875
XL- 75-1	75	10	1½	54	¾	1110
XL- 75-2		20			1	1130
XL- 75-3		25			1½	1130
XL-100-1	100	10	2	54	1	1200
XL-100-2		20			1½	1200
XL-100-3		30			1½	1290
XL-150-1	150	10	2½	66	1½	1340
XL-150-2		20			1½	1340
XL-150-3		30			2	1430
XL-200-1	200	10	3	66	2	1520
XL-200-2		20			2	1520
XL-200-3		30			3	1570
XL-300-1	300	10	4	66	3	1750
XL-300-2		20			3	1750
XL-300-3		30			5	1840

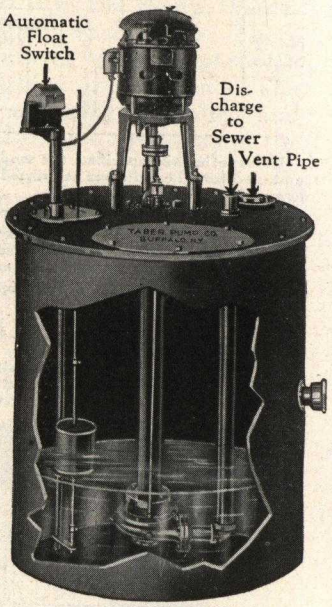


Fig. 1162-A

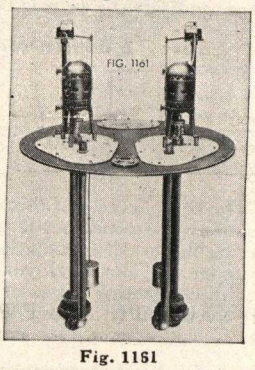


Fig. 1161

Taber Centrifugal Circulating Pump (Fig. 190)

A quality pump for circulating hot and cold water and refrigerating brine. Ideal for swimming pool circulation. Made in all sizes up to 1,200 gallons per minute.

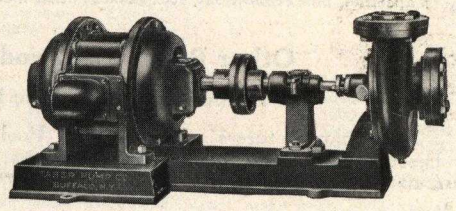


Fig. 190—Taber Circulating Pump

YEOMANS BROTHERS COMPANY CHICAGO, ILL.

General Offices—1442 Dayton Street

Established 1898 Representatives in all Principal Cities Bulletins on request

Sewage Ejectors

Cellar Drainers

Yeomans "Drain-Dri"

Yeomans "Drain-Dri" an unusually fine cellar drainer. Greater capacities with less power consumption and capable of higher heads, more rugged in construction and designed to give better performance and longer life. Yeomans quality throughout.

The Rust-Proof Cellar Drainer

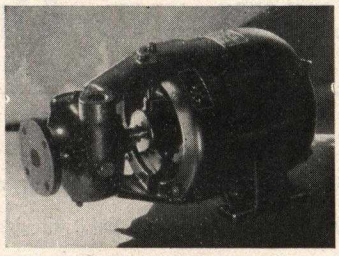
Built Right. Priced Right.

Ratings

Capacity G. P. M.	Feet Head	Capacity G. P. M.	Feet Head
10	22	35	16
20	20	40	14
25	18	45	12
30	17	50	10

Motor ¼ H.P., 1750 R.P.M. Discharge 1½-inch. Suitable for sump 24 inches to 60 inches deep, 12 inches to 30 inches in diameter. Readily removable "Adjusto" cover if required. Automatic control.

Circulating and Booster Pumps



Yeomans "Motopump"

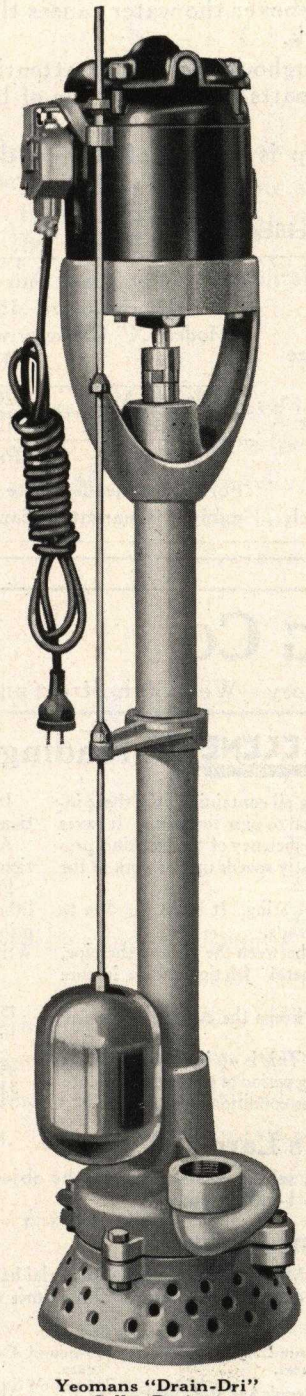
A small, compact centrifugal pump with impeller of novel design and unusually high efficiency for all purposes. Capacities from 5 to 35 G. P. M. (up to 140-ft. head). Stainless steel shaft. Write for Leaflet M-200.

Condensation Return Pumps



Condensation Return Unit

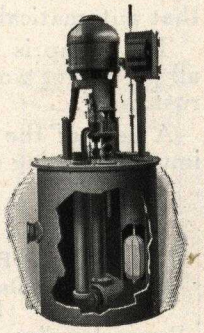
Yeomans "Motopump" Condensation Return Unit. Including cast-iron receiver, pump and electrical controls mounted on one base plate. C-5400 describes condensation return unit. Write for Bulletin C-5400.



Yeomans "Drain-Dri" Cellar Drainer

Pumping Machinery

Yeomans Heavy Duty Bilge Pumps and Sewage Ejectors

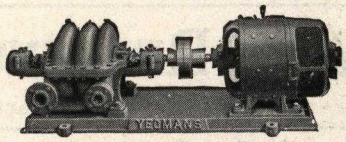


Heavy Duty Bilge Pump

Are adaptable for raising drainage from deep basements to street sewers in all classes of buildings. High water alarm, pipe casing for float, force feed lubricated bearings, automatic oil economizers, etc., as desired. Write for Bulletin B-3400.

NON-CLOGGING SCREENLESS—When equipped with our non-clogging pumps, these machines will handle sewage and no screens are required. Write for Bulletin BS-8000. These equipments can be furnished in both single and duplex outfits with or without cast iron or steel catch basin. They will handle any hot drainage with absolute certainty and no priming devices are required.

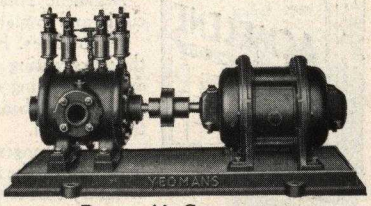
Horizontal Centrifugal Water Supply Pumps



Multi-Stage House Pump

Single and Multi-Stage, for general service. Complete equipments furnished with automatic control for roof tank or compression water supply systems. Single stage pumps have TIMKEN ROLLER BEARINGS. Write for Bulletin HS-1300.

Yeomans Direct Connected Rotary Air Compressors



Rotary Air Compressor

A compact, low cost, light weight, Rotary Air Compressor for any service where air at pressures up to 50 pounds is required. It is direct connected to motor or other driving unit, requires no belts, gears, pulleys or valves. Write for Bulletin AC-7100.

Other Yeomans Pumps

Shone Pneumatic Sewage Ejectors (Screenless).

Yeomans Form "A" Centrifugal Sewage Ejectors (Screenless).

Yeomans Dry Vacuum Pumps.

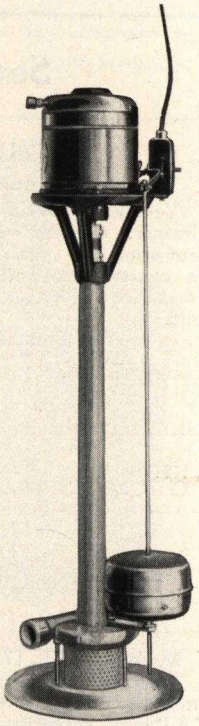
POLLUTION PROOF PUMPS—Yeomans Ejectors, Bilge Pumps and Shone Ejectors require no priming connections which might establish communication between water supply and sewer system.

TRIANGLE MANUFACTURING CO. DETROIT, MICH.

4045 Beaufait St.

Rathbun

Automatic Electric Drainage Pump or Sump Pump



The Rathbun Automatic Electric Drainage or Sump Pump is a complete unit that can be used for removing water anywhere it collects.

This pump requires no attention whatever, it is only necessary to connect it to an ordinary light socket and the pump will function whenever the water causes the float to rise to a point that automatically starts the pump to work.

The pump is carefully constructed throughout, particular attention having been made to all parts that would possibly rust. These parts are either made of bronze or are thoroughly rust-proof.

A user of the Rathbun Automatic Pump is assured of long continual service with a minimum operating cost and low first cost.

Specifications

¼-H.P. Ball-Bearing Heavy Type.
Repulsion Induction Motor
110-220-60 A. C.
Bronze Impeller—Bronze Bushings Oil-less Bronze Bearing.
No Stresses on Motor Bearing
Impeller Shaft Assembly carried on ball thrust bearing independent of motor.
Iron Parts Rust-Proof
Large Cylindrical Strainer over intake
Large Detachable Copper Float. High Grade Switch

Standard Unit—41 Inches High.
Crock Covers—18" to 24" if required.
Model "X" Capacity with ¼-H.P. 1750 R.P.M. Motor.

Gals. per Min.	20	30	35	40
Head in Feet	12	10	8	6

List Price, $55.00

For higher heads, write us for data on two-stage pumps, Guaranteed capacities up to 38 foot head.

THE ACME REFINING CO. CLEVELAND, OHIO

Main Office and Factory—West 56th Street and W. & L. E. R. R.

ACMELENE THREADING OIL Threading Oil



Acmelene is a scientific threading oil containing only those ingredients that have proved beneficial to pipe threading. It saves wear and tear on the dies, aids the efficiency of the machine, produces sharp clean threads, and greatly speeds up the work of the operator.

Acmelene Threading Oil is penetrating. It helps the dies to cut in and to make clean sharp threads.

It lubricates. Forms a film of oil between the die and the pipe, thus preventing that "metal-to-metal" friction which is sure death to cutting efficiency.

It cools. Absorbs the heat and keeps the cutting edges and the work cool.

Will not congeal or turn rancid. This is an important feature because it can be stocked over a long period of time with absolute certainty that it will be in first class condition when needed.

It is antiseptic. This feature eliminates all danger from infection.

Acmelene is sold under the guarantee that it will give satisfaction.

Five-gallon Pour-ezee drums and one-gallon cans attractively lithographed and Jobbers' name imprinted as distributor. Imprinted circulars and countersigns furnished free on request. Write for our circularization plan hooked up with your name.

"Acmelene" Threading Oil in two grades:

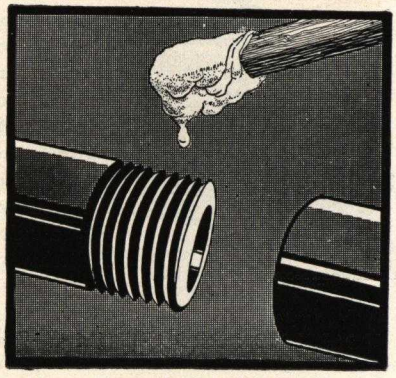
D. C. (Dark Color) for Power Machines.
L. C. (Light Color) for Power Machines and Hand Tools.

Put Up In:

55-gallon drums.
33-gallon drums.
15-gallon drums.
5-gallon pour-ezee drums.
1-gallon lithographed cans.

"Acme" Plumber's Lard Oil

for threading jobs in homes, apartments, hotels, etc., where oils stains may be objectionable. Put up in all size containers from 55-gallon drums to 1-gallon cans.



"Acme" Pipe Joint Dope

No leaks possible with "Acme" Pipe Joint Dope.

Makes an absolutely tight joint preventing leaks.

It will not allow corrosion as the combination of oils prevents the cement from drying hard even when used on high pressure steam lines.

Is perfectly ground, soft and smooth.

Absolutely free from grit.

A creamy mixture that means a permanently sealed connection.

REMEMBER it is a bulky material having a covering capacity easily two to three times as much as lead.

Put Up In:

600-pound Agitator Steel Drums.
400-pound Agitator Steel Half-Drums.
100-pound Steel Pails.
75-pound Steel Pails.
40-pound Steel Pails.
15-pound Cans, 6 to a case.
7½-pound Cans, 12 or 16 to a case.
5-pound Cans, 30 to a case.
1-pound Cans, 100 to a case.

Prices furnished on request.

THE BLUE SEAL CHEMICAL CO. ROSELLE, NEW JERSEY

126 Locust Street

BLUE SEAL PRODUCTS

Blue Seal
Double Strength
Drain Pipe Solvent



Double Strength Solvent

This product has been the Standard Solvent in the Plumbing and Heating Industry for 18 years. It has no equal. Can be had in 100 pound drums.

Packed in 1 pound and 2 pound small spout friction top cans.

Price—1 pound cans.....$0.60
2 pound cans..... 1.00

Use cold water.

Unconditionally Guaranteed.

Blue Seal
Odorless
Drain Pipe Solvent

A new product that places the plumbing dealer in position to compete with the grocer or hardware man.

A profitable merchandising item.



Odorless Solvent

Packed in 13 ounce cans only. 24 cans to carton.

Price, per can.....$0.25

No odor.

Use hot water.

Prevents obstructions.

Blue Seal
Instant
Boiler Cleaner



Instant Boiler Cleaner

Cleans a Boiler and entire Heating System in one operation.

Easy to apply—simple in operation. Will do a job more complete in less time than any cleaner we know of for about ½ the price of others.

Packed in 2 pound and 4 pound cans. 6 cans to carton.

Price—2 pound cans.....$2.00
4 pound cans..... 3.50

Blue Seal
De Luxe
Enamel Cleaner

Renews Enamel — Removes rust, grease, dirt. A kitchen asset in every home. Will not scratch the finest surface—smooth as velvet.

Packed in 100 pound drums—for Hospitals and Institutions.

Price, per drum.....$10.00



Enamel Cleaner

Packed 24 14 ounce sifting top cans to carton.

Price—Can $0.15.....2 for $0.25

Not a scratch in a carload.

Write for Discount Sheet

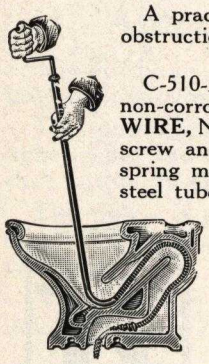
Send for Booklet on all Blue Seal Products

ALLAN J. COLEMAN MANUFACTURER CHICAGO, ILL.

208 North Wabash Avenue

Tools that will remove All Stoppages.

Flexible Coil Wire Closet Cleaners



A practical sanitary device for instantly removing obstructions from water closets.

Grade A

C-510-515—Flexible Coil made of a special prepared non-corrosive **SWEDISH SPRING STEEL MUSIC WIRE,** No. 12 gauge, ½-inch size, with removable corkscrew and cone wire. A very flexible and strongest spring made, assembled with steel handle and heavy steel tube, cadmium plated, which makes them non-rusting. **Perfect** in construction and will last indefinitely.

C-510—3-foot Music Steel Wire Spring, weight 3 pounds.....$5.50

C-515—6-foot Music Steel Wire Spring, weight 4 pounds..... 6.50

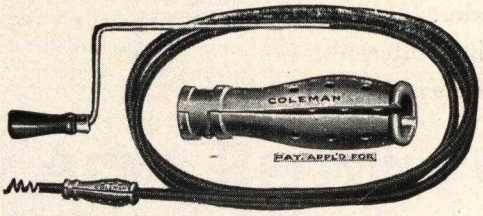
The Very Best Closet Cleaners Made

Grade B

C-516 to 519—Spring is made of a high grade special prepared No. 12 gauge Oil Tempered Spring Steel Wire, ½-inch size, with removable corkscrew and cone wire, assembled with steel handle and heavy steel tube. All parts are Black Enameled.

C-516—3-foot Coil, Black Enameled, weight 3 pounds.....$4.00
C-517—6-foot Coil, Black Enameled, weight 4 pounds..... 5.00

Flexible Coil Wire Sewer and Pipe Augers with Automatic Grip Handle

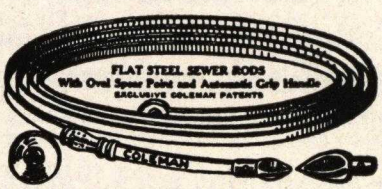


For use in removing obstructions in vacuum, drain pipes or sewers. Made of the best oil-tempered spring steel, and are flexible, enabling them to turn bends and go through traps. Made with corkscrew and handle complete, also furnished with automatic grip handle.

Style No.	Size Inches	Length 6 Feet	Length 9 Feet	Length 15 Feet	Length 25 Feet	Length 50 Feet	Length 100 Feet
C-520a	3/16	.....	$1.50	.....	$2.50	$ 4.50	$ 8.00
C-520b	¼	.....	1.75	.....	3.00	5.00	9.00
C-520	⅜	$2.25	3.00	$5.00	7.50	12.00	20.00
C-525	½	2.50	3.25	5.50	8.00	15.00	25.00
C-528	⅝	.....	.....	6.50	9.00	16.00	30.00

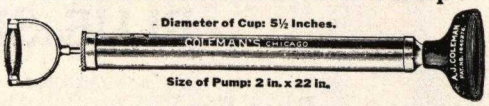
			Price
C-530	¾	10-ft. sec., hdl., and corkscrew	$5.50
		Extra 10-foot section	5.00
C-535	1	10 ft. sec., hdl. and corkscrew	6.50
		Extra 10-foot section	6.00

For cleaning out straight sewers or drains. Made of a special oil-tempered, flat spring, steel wire. Furnished with oval spear point on one end and a roller ball point on the other end, which increases efficiency in removing stoppages. Also equipped with an automatic grip handle.



Style No.	Width and Thickness	Length 25 Feet Price	Length 50 Feet Price	Length 75 Feet Price	Length 100 Feet Price
C-536	¼x1/16	$1.85	$ 3.50	$ 5.00	$ 7.00
C-537	½x1/16	2.40	4.50	6.00	8.00
C-538	¾x1/16	4.00	6.00	8.00	10.00
C-539	¾x⅛	5.00	7.00	10.00	14.00
C-539a	1 x⅛	6.00	8.50	11.50	15.75
C-540	1¼x⅛	6.00	9.00	12.00	16.00
C-542	1½x⅛	7.00	10.00	15.00	20.00

Brass Suction and Force Pump



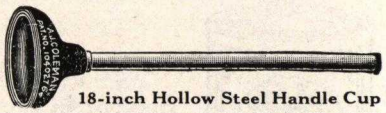
Large reversible Rubber Cup. Fits any opening up to 5 inches. Wonderful article for opening sinks and drains.

C-500—Pump with Cup. Weight, 6 pounds.....Each $12.00
C-505—Cup only. Weight, 1 pound.....Each 1.50
C-508—Graphite packing rings.....Per set 1.50

Suction and Force Cups

High grade rubber. All handles secured to Cup by threads and sockets.

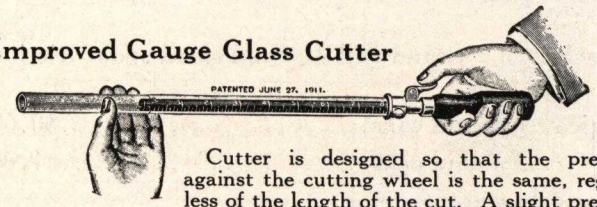
No better cups on the market.



18-inch Hollow Steel Handle Cup

Style No.	Size Inches	Color	Wood Handles Inches	Price Per Dozen
C-545	5½	Red	Steel 18	$24.00
C-550	5½	Red	Cup Only	18.00
C-555	5½	Red	Wood 30	15.00
C-560	5½	Black	Wood 30	12.00
C-565	4½	Red	Wood 30	9.00
C-570	4½	Black	Wood 30	7.80

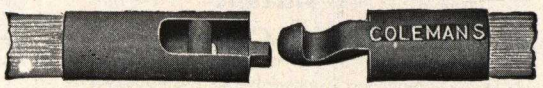
Improved Gauge Glass Cutter



Cutter is designed so that the pressure against the cutting wheel is the same, regardless of the length of the cut. A slight pressure on the thumb latch locks cutter in position. The beam is accurately graduated in eighths of an inch. Cutter wheels are ground sharp and tested. The tool is nickel plated. Handle has hard rubber finish. Packed one in a box with one extra cutter wheel.

		Price
No. 1	—Cuts to 8-inch lengths, weight 6 ounces	Each $2.00
No. 1½	—Cuts to 12-inch lengths, weight 7½ ounces	Each 5.50
No. 2	—Cuts to 18-inch lengths, weight 10 ounces	Each 6.00
No. 3	—Cuts to 24-inch lengths, weight 11½ ounces	Each 6.50
No. 4	—Cuts to 30-inch lengths, weight 13½ ounces	Each 7.00

Conduits and Sewer Rods

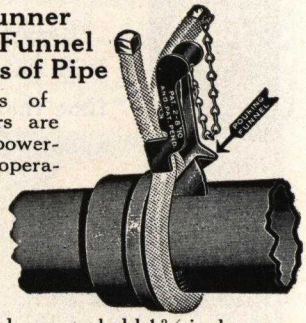


Made of the best grade of one-inch second growth hickory, three- or four-foot lengths, coupled together with the latest and most improved malleable iron coupling.

		Price
C-543	—Rod with couplings 1⅛ inch x 3 feet	$1.25
C-543a	—Rod with coupling 1⅛ inch x 4 feet	1.35

Improved Lead Joint Runner Clamps Contain Pouring Funnel Rope Furnished for All Sizes of Pipe

The smaller sizes have clamps of wrought steel. The clamp fingers are closed upon the rope by means of a powerful but elastic spring, making the operation very rapid. The larger sizes requiring a much heavier rope, are provided with a Malleable Iron Clamp and the rope is clamped by means of steel multiple thread screws.



Nos. 5 to 10 are specially made clamps to hold 1⅜-inch square asbestos rope for large pipes. The pouring funnels are made large to take care of the flow of lead quickly.

No.	Price, each	No.	Price, each.
1—For pipe 2 to 4 inches	$ 2.30	6—Rope to fit 24-inch pipe	$12.00
2—For pipe 2 to 6 inches	2.45	7—Rope to fit 30-inch pipe	13.50
3—For pipe 6 to 10 inches	4.20	8—Rope to fit 36-inch pipe	15.00
4—For pipe 10 to 14 inches	5.50	9—Rope to fit 42-inch pipe	16.50
5—Rope to fit 16-20-in. pipe	10.50	10—Rope to fit 48-inch pipe	18.50

Send for Latest Catalogue Showing Other Specialties

THE WILLIAM CONNORS PAINT MFG. CO. TROY, N. Y.

Office and Factory—669-683 River Street

Manufacturers Since 1852

"American Seal" Elastic Oil Roof Cement

For bedding slate and tile roofs. Does not run, crack or crumble, retaining elasticity under all conditicns. For repairing leaks in slate, tile, tin, metal, gravel and composition roofs. Makes roofs tight where solder cannot be used. Adaptable for pointing around skylights and fire walls. Regularly made in five standard colors, Red, Brown, Black, Gray and Green. Can also be made in special colors to match any sample of slate or tile.

	List Price per Lb.
1 lb. cans	$0.18
2 lb. cans	.17
3 lb. cans	.16
5, 10, 25 lb. pails	.14
50 lb. pails	$0.13
Drums	.11
Barrels	.10

Gray and Green, 1c per net pound advance.

"American Seal" Caulking and Glazing Compound

Knife or Trowel Consistency Gray

	List Price per Lb.
In 1 lb. cans	$0.24
In 5 lb. pails	.22
In 10 lb. pails	.20
In 25 lb. pails	.19
In 50 lb. pails	.18
In drums (125 lbs.)	.16
In barrels (800 lbs.)	.14

Special colors 1c per net pound advance.

Gun Consistency Gray

	List Price
In quart cans	$4.00
In 1 gallon pails	3.40
In 5 gallon kits	3.20
In 50 gallon drums	3.00

Special colors 15c per net gallon advance.

"American Seal" Vault Light Cement

Compounded for bedding glass in sidewalk lights, vault lights, etc., making them water, dust and dirt-proof. Adaptable for all sorts of glazing. Works freely under the thumb and will not fall out, crack or crumble. Regularly made dark blue in color but can be made in any color where quantity is sufficient.

	List Price per Lb.
5 to 10 lb. pails	$0.32
25 lb. pails	.28
50 lb. pails	.28
Drums	$0.26
Barrels	.24

"American Seal" Drain Pipe Solvent

	List Price
1 lb. cans	$7.20 per doz.

(Packed 24 1-lb. cans to the case.)

"American Seal" Graphite Pipe Joint Cement in Oil

Will keep joints from leaking. Put up for instant use.

	List Price per Lb.
1 lb. cans	$0.28
2 lb. cans	.27
3 lb. cans	.26
5 lb. pails	.24
25 lb. pails	$0.20
Drums	.17
Barrels	.14

"American Seal" Gray Pipe Joint Cement in Oil

	List Price per Lb.
1 lb. cans	$0.28
2 lb. cans	.27
3 lb. cans	.26
5 lb. pails	.24
25 lb. pails	$0.20
Drums	.17
Barrels	.14

"American Seal" Dry Asbestos Stove Lining

	List Price
In 3 lb. packages, per doz	$3.60
In 6 lb. packages, per doz	6.00
In 10 lb. packages, per doz	8.40
In barrels, bulk, per 100 lbs	6.00

"American Seal" Asbestos Furnace Cement

Will stand unusual heat and bakes as hard as the casting. Will not crack, shrink, crumble or fall out. Contains maximum percentage of asbestos fibre, free from oils, and is smokeless and odorless.

	List Price per Lb.
1 lb. cans	$0.18
2 lb. cans	.17
3 lb. cans	.16
5, 10, 25 lb. pails	.14
50 lb. pails	$0.13
Drums	.11
Barrels	.10

"American Seal" Stove Putty

Smokeless and odorless. When subjected to heat becomes hardened, making joints air and gas tight. Works freely under the thumb and adheres perfectly. Will stand excessive heat.

	List Price per Lb.
1 lb. cans	$0.18
2 lb. cans	.17
3 lb. cans	.16
5, 10, 25 lb. pails	.14
50 lb. pails	$0.13
Drums	.11
Barrels	.10

"American Seal" Boiler Cement

Makes tight joints in steam and hot-water boilers and radiators. Unaffected by either heat or steam and will not shrink. Works easily under the thumb and will not fall out or crumble.

	List Price per Lb.
1 lb. cans	$0.18
2 lb. cans	.17
3 lb. cans	.16
5, 10, 25 lb. pails	.14
50 lb. pails	$0.13
Drums	.11
Barrels	.10

"American Seal" Carbon Cement

	List Price per Lb.
1 lb. cans	$0.24
2 lb. cans	.23
3 lb. cans	.22
5 lb. pails	.20
10 lb. pails	.19
25 lb. pails	$0.17
50 lb. pails	.16
Drums	.14
Barrels	.10

"American Seal" Dry Pipe Joint Cement

	List Price per Lb.
In 1 lb. cans	$0.30
In 5 lb. pails	.26
In 10 lb. pails	.26
In 50 lb. pails	$0.24
In barrels	.20

"American Seal" Liquid Carbon Cement

	List Price
In 1 gallon pails	$1.70

"American Seal" Stove Pipe Enamel

	List Price per Gallon
1 gallon pails	$2.00
½ gallon pails	2.30
1 quart cans	2.60
1 pint cans	$3.00
⅛ pint cans	4.00
¼ pint cans	5.00

Quantity Discounts on Application

B. T. BABBITT, NEW YORK, N. Y.

Main Office—386 Fourth Avenue

Branch Offices

Baltimore, Md.
610 Gutman Avenue

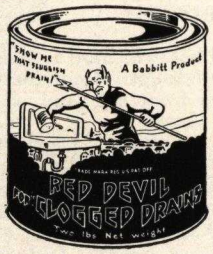
Boston, Mass.
131 State Street

Chicago, Ill.
43 East Ohio Street

Cleveland, Ohio
1122 Guarantee Title Building

Philadelphia, Pa.
Drexel Building

Red Devil Products



Red Devil for Clogged Drains

Packed in One and Two pound cans.



Red Devil Boiler Liquid

Packed in One Quart cans.



Red Devil for Enamel and Porcelain

Packed in 14-Ounce cans. Carton contains 24 cans.

ALEXANDER R. BENSON CO., INC. HUDSON, N. Y.

Canadian General Electric Co., Ltd., King and Simcoe Streets, Toronto, Ont.

Yager's Soldering Salts and Paste

Yager's Soldering Salts



No Fumes. No Acid. No Corrosion. Makes perfect electrical and mechanical joint. Will not streak or discolor the work. Saves time and solder. Tin your irons with Yager's salts. Keep well covered when not in use. Preserve contents by storing in cool place. Full directions on each can. Simply dissolve in water. We recommend for general use, one pound to a gallon. Apply with small brush or oil-can. A little does much.

Yager's Soldering Paste



Non-Acid, Non-Corrosive. The original Yager's flux now made in paste form for plumbing and electrical trade and general soldering. Directions—Clean the metal, heat the joint where possible, apply a bit of paste and flow solder with a clean, well-tinned iron.

List Prices Yager's Salts

Size	Style	List Price Each
½-pound	Enameled cans	$0.50
1-pound	Enameled cans	.80
5-pound	Enameled cans	3.00

List Prices Yager's Paste

Size	Style	List Price Each
2-ounce	Enameled cans	$0.15
½-pound	Enameled cans	.50
1-pound	Enameled cans	.90

Both Yager's Salts and Paste supplied in bulk.

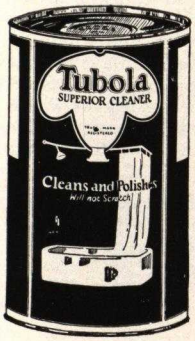
Full directions for use on each can

Jobbers write for net costs

Please mention Domestic Engineering Plumbing and Heating Catalog when writing

DESOLVO MANUFACTURING CO. PITTSBURGH, PA.

33 Terminal Way



Tubola Cleaner and Polisher

Tubola is a new product which cleans and polishes enamel ware of any description without scratching the surface. It can be used equally well in the bathroom and in the kitchen. Aluminum, nickel, brass, kitchen utensils and linoleum take on a new appearance after an application of Tubola.

Tubola is particularly adapted for use in soda fountains and for porcelain and marble store fixtures.

Packed in cartons of 1 and 2 dozen 12-ounce cans.



Kloset Klean

Kloset Klean removes sediment, stains and odors from closet bowls and vitreous ware without scrubbing. This powdered chemical solvent cleans without any effort on the part of the user and is highly effective.

K K can be furnished in cartons of 1 dozen 22-ounce cans.



Triple Strength Desolvo—Sewer and Drain Pipe Cleaner

Desolvo is a chemical solvent which solves the problem of clogged sewers and drain pipes. When Desolvo comes in contact with either hot or cold water it generates heat enough to dissolve organic matter such as grease, rags, soap, hair and other solid matter which clogs pipes.

In the winter time Desolvo is an indispensable aid because it immediately dissolves ice. It has absolutely no effect on metals and will not harm or injure pipes.

Desolvo can be furnished in corrugated cardboard cases, 2 dozen 16-ounce cans, 1 dozen 2-pound cans to the case, and 1 dozen 12-ounce cans to the case.

Will not harden in pipes. Not necessary to remove strainer. Use any portion of can. Make Triple Strength for Quick Action.

CHACO Boiler Liquid



A scientific compound used in repairing leaks in steam boilers and hot water systems and any defects which may occur in new installations. Its use is exceedingly simple and its results are permanent.

The action of Chaco Boiler Liquid is certain and uniform. When the liquid is carried into the leak by the water in which it is dissolved it hardens as soon as it comes into contact with the outside air, forming a permanent mend which grows harder the longer it remains. Sand holes and other defective castings and imperfect pipe threads or leaks from any cause whatever on new jobs are hermetically sealed by the use of Chaco Boiler Liquid at the completion of the installation.

Chaco, from the nature of its composition, is also an effective solvent of boiler scale, hence its use is beneficial to the system treated, either to prevent the formation of destructive scale or its removal when present.

GENERAL WIRE SPRING COMPANY — PITTSBURGH, PA.

Office and Factory—310 First Avenue

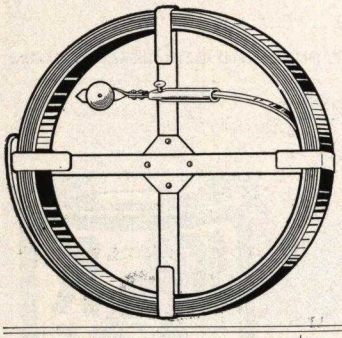
Sanitary Specialty Tools

Pipe Bending Springs



These springs are made from spring steel wire, specially tempered to withstand continuous bending in pipe and still retain original shape. Black enameled.

1¼-inch diameter—2¼ pounds.....$0.65
1½-inch diameter—3½ pounds..... .75
2 -inch diameter—4¾ pounds..... .95



Flat Sewer Rods

A sturdy tool for cleaning waste pipe and sewers. Made of special oil-tempered spring steel that will not curl after constant use.

All sizes are furnished with adjustable sliding handle and a split roller head that permits easy feeding into pipe.

	No.	Length Feet	Weight Pounds	Price
¼x1/16-inch Small pipe	25A	25	2	$ 1.50
	50A	50	4	2.00
	75A	75	6	2.50
	100A	100	8	3.00
½x1/16-inch Medium pipe	25B	25	3	2.50
	50B	50	6	4.50
	75B	75	9	6.00
	100B	100	12	8.00
¾x1/16-inch Pipe 2 to 4-inch	25C	25	4	4.00
	50C	50	8	6.00
	75C	75	12	8.00
	100C	100	16	10.00
¾x⅛-inch Pipe 4 to 6-inch	25D	25	8	5.00
	50D	50	16	7.00
	75D	75	24	10.00
	100D	100	32	13.00
1¼x⅛-inch Large pipe or sewers	25E	25	14	7.00
	50E	50	28	11.00
	75E	75	42	14.00
	100E	100	56	17.00

Flat Sewer Rod Holders

Note—In ordering Flat Sewer Rods, specify if Holder is desired.

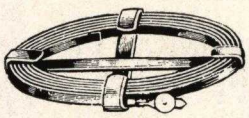
This device is a necessary aid in operating and holding Flat Sewer Rod. It enables one man to quickly and safely uncoil the Rod as it is fed into the sewer. Made of heavy flat steel with black enameled finish.

No. 1—For ¼, ½, ¾x1/16-inch Rod.....$1.00
No. 2—For ¾x⅛-inch Rod..... 1.25
No. 3—For 1¼x⅛-inch Rod..... 1.50

Extra Roller Heads

For ¼x1/16 Rods.....$0.40
For ½x1/16 Rods..... .75
For ¾x1/16 and ¾x⅛..... 1.00
For ¼x⅛ Rods..... 1.50

Flexible Sink Cleaner

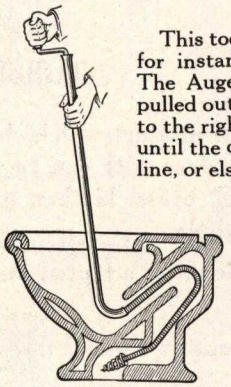


Suitable for cleaning bath drains, sink traps and small size pipes.

Made from flexible and durable ¼ x 1/32-inch oil tempered spring steel. Supplied with handy 10-inch diameter frame from which the steel can be easily uncoiled into the pipe and then recoiled when finished.

No. 25SP—25 ft. long—Weight 1 lb. Price.....$1.75

Closet Augers

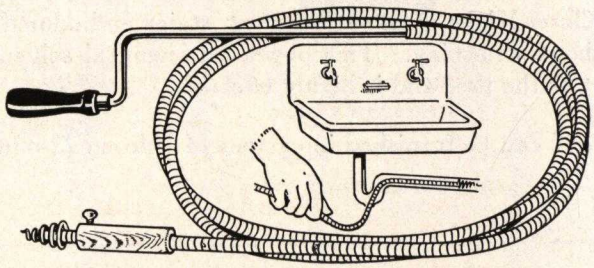


This tool is the most practical and sanitary device for instantly removing obstructions from closets. The Auger is inserted in bowl with crank handle pulled out of tube to its limit. The handle is turned to the right, working the spring through the passage until the obstruction is either forced down the waste line, or else caught by the corkscrew and removed by pulling back on the handle while holding down the tube.

The spring is made from specially prepared oil-tempered spring wire to withstand the most severe strains, and is black enameled to prevent rust. Guide tube is heavy gauge seamless brass, highly polished and lacquered.

Number	Length Feet	Diameter Inches	Weight Pounds	Price
3A	3	7/16	2	$2.00
6A	6	7/16	2¾	2.50
9A	9	7/16	3½	3.00

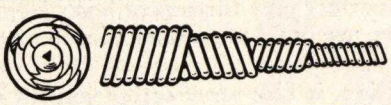
Drain Pipe and Sewer Augers



Strong and flexible, they easily take the closest bends and elbows. They are made of finest grade spring wire, black enameled, and furnished with sliding and adjustable handle and crank handle. The ¼-inch size is equipped with adjustable handle only, and special corkscrew for small pipes.

Number	Length Feet	Weight Pounds	Price
For small Sinks, Lavatory Drain Pipes, etc. ¼-Inch Diameter, 15-Gauge Wire			
6Q	6	1	$1.00
8Q	8	1¼	1.25
10Q	10	1½	1.50
12Q	12	1¾	1.75
15Q	15	2	2.00
25Q	25	3	3.00
50A	50	6	5.00
75Q	75	9	7.00
100Q	100	12	9.00
For 2 to 4-Inch Drain Pipes—7/16-Inch Diameter, 13-Gauge Wire			
6M	6	2	$1.50
8M	8	2½	1.75
10M	10	3	2.00
12M	12	3½	2.25
15M	15	4½	2.50
25M	25	7	4.00
50M	50	13	7.00
75M	75	16½	10.00
100M	100	20	12.50
For 4 to 6-Inch Drain Pipes—½-Inch Diameter, 12-Gauge Wire			
6L	6	2½	$2.00
8L	8	3	2.40
10L	10	4	2.75
12L	12	5	3.15
15L	15	6	3.75
25L	25	10	5.25
50L	50	18	10.00
75L	75	26	15.00
100L	100	35	19.00

Multicoil Four-In-One Spring Augers



Multicoil Augers are constructed of sixteen strands of highly tempered wire, four strands to each layer, and are non-breakable and practically non-kinkable as kinks, should they occur, can be straightened by hand without impairing the strength or flexibility of the Auger. This is the strongest possible construction for cleanout tools.

Drain Pipe Augers are equipped with crank handle and adjustable sliding handle.

Closet Augers

3 ft.—⅜-inch dia.....$4.00 6 ft.—⅜-inch dia.....$5.50

Drain Pipe and Sewer Augers

12 ft.—¼-inch dia.....$3.75 25 ft.—¼-inch dia.....$6.25
12 ft.—⅜-inch dia..... 6.75 25 ft.—⅜-inch dia..... 12.50

HERCULES CHEMICAL CO., INC. NEW YORK CITY

332 Canal Street

HERCULES PRODUCTS



Hercules Cold Water Drain Pipe Cleaner

For the clogged plumbing job. Hercules Drain Pipe Cleaner dissolves everything except glass or metal without injury to the plumbing. Will work for thawing frozen plumbing.

Put up in twelve-ounce, one and two-pound net weight cans.

Now also manufacturing a FUMELESS Hercules Drain Pipe Cleaner.

Hercules Triple Strength Boiler Liquid



Guaranteed unconditionally to repair water leaks in any part of a high or low pressure system, or hot water heating system without shutting down.

Hercules Boiler Liquid finds and seals hair cracks, leaky bolt heads and makes inside repairs which would be impossible otherwise. Where the cracks are very large, it is best to stuff with lead wool or tin foil.

Put up in quart, half-gallon and gallon cans.

Hercules Pipe Joint Compound

Hercules Pipe Joint Compound is adapted for use on Steam, Oil, Water, Gas or Ammonia Pipings, Bolts, Studs and wherever Pressure Tight Joints or those easily applied and removed are desired.

It is not affected by heat or cold, does not harden, dry out, set or cement. It will not crack under vibration nor will it clog the valves or small passage in any system.

Prevents rusting or corrosion.

Recommended for use on Brass.

Put up in one, five and ten-pound cans.



Hercules Boiler Cleaner

Is a scientifically prepared powdered compound for the benefit and promotion of efficiency in the boiler. Stops Foaming, Priming, Surging, Fuel Waste and Sluggish Steaming. Removes grease, oil, scale, rust and dirt.

Put up in 1½, 3, 5 and 10-pound cans.





Hercules Boiler Solder

Is a scientifically compounded metallic powder that makes a permanent metallic repair. Will not damage the system in any way. It expands and contracts with the boiler. Put up in 1-lb. net weight cans.



Hercules Plumber's Soil

Hercules Plumber's Soil guarantees uniform joints with clean edges.

Lead or Solder cannot adhere to lead or brass pipes coated with Hercules Plumber's Soil. This soil will not rub off or blister. Apply with brush or fingers.

Put up in three-ounce cans.

Hercules Closet Bowl Cleaner

Cleans, deodorizes and sterilizes closet bowls and keeps them sanitary. It cleans without scrubbing or scouring and eliminates the necessity of removing the water from the bowl or touching bowl or solution with the hands.

Hercules Closet Bowl Cleaner will not injure the bowl or drains.

Put up in 22-ounce net weight cans.



Hercules Enamel and Porcelain Cleaner

For cleaning bath tubs and all porcelain articles. Tile walls and floors. Lined sinks and drain boards Enameled ware. Linoleum and painted walls. Cleans with a lustre finish.

Hercules Enamel and Porcelain Cleaner will also clean and polish Nickel, Brass, Copper, Aluminum, Kitchen Utensils, Linoleum.

Put up in one-pound net weight cans.





Hercules Storage Tank Cleaner

Made especially for the Domestic Hot Water Systems.

Eliminates rusty water and discolored, unsightly tubs and basins caused by rust scale inside storage tanks, service tanks, pipes, etc.

Non-Poisonous. Absolutely Harmless to Metal. Put up in half-gallon cans.



Hercules Soldering Paste

Hercules Soldering Paste works freely on tinned steel, lead, galvanized iron and other metals.

Hercules Soldering Paste is made especially for plumbers, steam fitters, dynamo builders, contractors, telephone makers, electrical trade and tinners.

Put up in two-ounce and one-pound cans.

SPECIAL NOTICE:

Freight Prepaid on gross orders on any one product or split orders amongst the six products. Customers' names imprinted on envelope enclosures; Display Stands and Cuts of Cans all FREE upon request.

SATISFACTION OR YOUR MONEY BACK.

Sold Exclusively to the Plumbing Trade

HETZEL ROOFING PRODUCTS CO. NEWARK, N. J.

Established 1860



67 Maine Street

Roofing Cements and Paints

"Hetzel's" Elastic Rubber Roof Cement

"THE OLD ORIGINAL"

For slate, tile, tin, and composition roofs; pointing up stone work and masonry; laying of asphalt shingles, etc. Can be painted over without color striking through. Colors—Red, Black, Green, White and Gray.

	Per pound		Per pound
*	1-pound cans	*25-pound pails	
*	2-pound cans	65-pound pails	
*	3-pound cans	120-pound drums	
*	5-pound pails	½ barrels and barrels	
*10-pound pails			

Gray, 5 cents per pound advance.
White, 10 cents per pound advance.
Green, 4 cents per pound advance.
Special colors made to order.

"Hetzel's" Furnace Cement

Smokeless—Odorless—Free from Oil.
Bakes hard and makes tight seams.

	Per pound		Per pound
1-pound cans		25-pound pails	
2-pound cans		65-pound pails	
3-pound cans		130-pound drums	
5-pound pails		Barrels	
10-pound pails			

"Hetzel's" Asbestos Plastic Compound (Paste)

For repairing all kinds of leaky roofs, chimneys, etc.

Color, black	Per pound	Color, black	Per pound
*1-pound cans		25-pound pails	
2-pound cans		65-pound pails	
3-pound cans		120-pound drums	
*5-pound pails		½ barrels and barrels	
*10-pound pails			

Red—2 cents per pound advance.

"Hetzel's" Asbestos Fibrous Roof Coating (Liquid)

A heavy asbestos paint for all kinds of roofing.

Color, black	Per gallon		Per gallon
*1-gallon cans		Barrels	
5-gallon cans			

Red—40 cents per gallon advance.

"Hetzel's" Superior Roof Coating

For painting all kinds of ready roofing, fence posts or wood to go underground. Renews and preserves.

	Per gallon		Per gallon
*1-gallon cans		5-gallon cans	
2-gallon cans		Barrels	

Made in black color only.

"Hetzel's" Pipe Joint Compound, Ready Mixed

As smooth as velvet—Fills all joints evenly. For steam, gas, air, ammonia pipes, etc. Does not harden and permits parts to be disconnected without injury to same.

Color, red	Per pound	Color, red	Per pound
* 1-pound cans		25-pound pails	
2-pound cans		75-pound pails	
3-pound cans		150-pound drums	
* 5-pound pails		½ barrels and barrels	
*10-pound pails			

Gray—2 cents per pound advance.

"Hetzel's" Rub-on Paint

A heavy oil paint which seals up all small holes and porous spots on tin or metal roofing. Preserves the metal and prevents rust. Colors, red or black.

	Per gallon		Per gallon
*1-gallon cans		Barrels	
5-gallon cans			

"Hetzel's" Jetblac Paint

Color, Black only. Acid resisting—Rust Proof.
For painting rubber and tar roofings, metal sidings, smoke stacks, boilers, radiators, steam pipes, gutters, railings, fences, etc.

	Per gallon		Per gallon
1-gallon cans		Barrels	
5-gallon cans			

"Hetzel's" 1200 Red Paint

A high grade paint for tinners' use—unequaled for new tin and metal work.

	Per gallon		Per gallon
1-gallon cans		Barrels	
5-gallon cans			

"Hetzel's" Best Metallic Paint

Color, red

	Per gallon		Per gallon
*1-gallon cans		Barrels	
5-gallon cans			

"Hetzel's" Asphalt Paint

Color, black

	Per gallon		Per gallon
1-gallon cans		Barrels	
5-gallon cans			

"Hetzel's" Black Enamel Paint

For steam pipes and boiler fronts.

	Per gallon		Per gallon
1-gallon cans		Barrels	
5-gallon cans			

"Hetzel's" Metallic Ground in Oil

	Per pound		Per pound
12½-pound cans		100-pound drums	
25 -pound cans		Barrels	

***Packed in Lithographed Cans.**

KEY BOILER EQUIPMENT COMPANY — EAST ST. LOUIS, ILL.

Key-Tite Waterproof Pipe Joint Compound



Key-Tite Pipe Joint Compound will effectively seal screw thread and gasket joints for such service as Gas, Water, Steam, Compressed Air, etc.

One of the many advantages this compound has, is that the pigment will not settle to the bottom of the container, thereby holding the contents in equal suspension at all times ready for service.

Key-Tite Pipe Compound is not a quick hardening cement but a plastic lubricant and filler that will seal the most obstinate joint with ease.

Test the high quality of this product by taking a small quantity between the fingers, which will immediately demonstrate the wonderful lubricating qualities along with the "pull or drag" that makes possible a permanent seal without resorting to cementing materials. Another demonstration can be obtained by lifting a quantity of the mixture from the can, stretching same to its full elasticity, readily showing the large amount of surface a small quantity of Key-Tite will cover.

Sizes, Weights and List Prices

Size	Case	Approximate Weight per Can	Price per Can
½ pt. Handy Kit*	96	12½ oz.	$0.35
½ pt.	96	12½ oz.	.25
1 pt.	48	1 lb. 10½ oz.	.40
½ gal.	12	6 lb. 8 oz.	1.35
1 gal.	6	12 lb. 14 oz.	2.55
5 gal.		60 lb.	10.80
½ bbl.		460 lb.	.16 per Lb.

*The handy kit is a screw top can, with brush attached to cover; tinned strap for hanging the can on pipe.

Key Graphite Paste

The Universal Sealing Compound for all Screw Thread and Gasket Joints Listed by National Board of Fire Underwriters

Expansion Under Heat—When Key Graphite Paste is subjected to heat it expands and fills in every irregularity in the joint, such as battered gaskets, worn-out screw threads, sand holes in fittings, or any other defect in which a leak is liable to develop. This makes Key Paste an ideal sealing compound for use in all steam plant and boiler connections, hot oil and hot air lines, internal combustion engines, pumps, oil burning equipment or any other high temperature service.

Oil and Acid-Proof—Key Graphite Paste will hold a joint leak-proof against all oils, acids and gases which have a tendency to penetrate.

Lubricates as it Seals—This is important when time is a factor in making screw connections on pipe lines. It allows for greater speed in assembling and forms a leak-proof joint that will hold up under any condition of service.

Economical to Use—Key Graphite Paste requires water only for thinning, which makes it a very economical compound.

Joints Easily Disconnected—Joints sealed with Key Graphite Paste can be taken apart whenever necessary without damaging pipe threads or gasket. After the joint is disconnected it can be cleaned and restored to its original usefulness simply by washing it thoroughly with plain water.



Sizes, Weights and List Prices

	Cans in Case	Weight per Case, Lbs.	Price per Can		Cans in Case	Weight per Case, Lbs.	Price per Can
¼-lb. Cans	240	60	$0.25	10-lb. Cans	6	60	$4.50
1-lb. Cans	60	60	.75	30-lb. Buckets			10.50
3-lb. Cans	24	72	1.65	60-lb. Buckets			15.00
5-lb. Cans	12	60	2.50	Barrels (400 to 700 lbs.)			Per Lb. $0.12½

Key "Lemay" Forced Feed Faucets

For extracting Key Graphite Paste, Key-Tite, and other heavy mixtures from drums or barrels. Positive worm action, driven by crank, removes practically all contents without loss of time or material. Our bulk containers are equipped with 1½-inch outlets to accommodate these faucets . . . . . List, each, $5.00

(All prices F. O. B. E. St. Louis, Ill.)

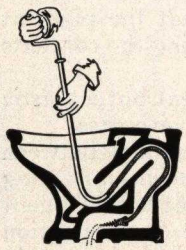
LEWIS SANITARY TOOL CO. QUINCY, MASS.

Washington Court

Representatives

Avondale Estates, Georgia, Ford H. Pratt, 15 Kensington St.
Hollis, N. Y., Albert Baerenklau, 8926 185th St.
Boston, Mass., E. F. Sheehan, 93 Auckland St. (Dorchester).
San Francisco, Cal., T. A. Mitchell Co., 7 Front St.
Cleveland, Ohio, John R. Stiles, 700 The Prospect-Fourth Bldg.
Syracuse, N. Y., John W. Stiles, 141 Hillsdale Ave.

Perfection Sanitary Plumbers' Equipment



Closet Augers

Made of specially prepared Oil Tempered Spring Steel, 12 gauge. Will instantly remove obstructions from Toilets and Plumbing Fixtures. Will last indefinitely.

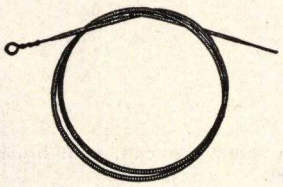
	List Price
No. 20— 3 feet	$2.00
No. 21— 6 feet	2.50
No. 22— 9 feet	3.00
No. 23—12 feet	3.50

Super Duty Closet Augers

Hard Drawn Brass Tubing made extra long from 7/8-inch Heavy gauge brass tubing 3/8-inch steel crank rod, hard wood handle, 5/8-inch non-kinking spring from No. 9 gauge spring steel. Has spiral head for picking up obstructions. The Best That Can Be Made.

Number	Length Feet	Diameter Inches	Weight Pounds	List Price
20-A	3	7/8	6	$5.75
21-A	6	7/8	10	7.25
22-A	9	7/8	12	8.75

Snake Wires



Made of tempered coppered wire to prevent rusting. Very inexpensive for cleaning small waste lines.

	List Price
No. 46C— 8 feet snake wire	$0.40
No. 47C—15 feet snake wire	.85

Flat Sewer Rods

With Solid Spear Head or Roller Head

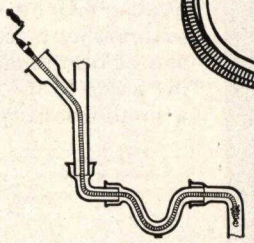
Specify kind of Head desired when ordering.

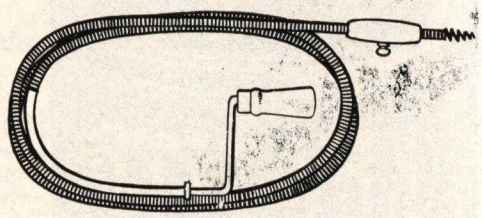
Comes fully equipped with 5 1/2-inch locking, sliding, adjustable, hand grip and boring point with hooks. Will bore through dirt and mud, withdrawing stoppages.

Made of Oil Tempered Spring Steel.

We also supply Sewer Rods coiled without attachments. Price per pound on application.

Sewer and Drain Pipe Augers





Comes fully equipped with sliding adjustable handle. Made of Oil Tempered Steel. Waterproof enamel. For heavy duty work—goes around bends and traps easily.

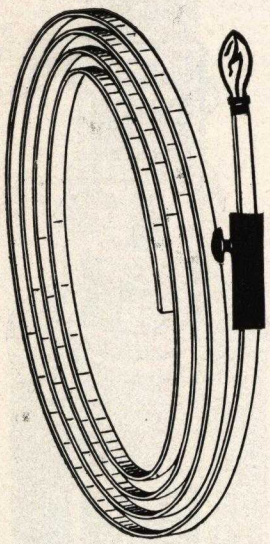
Sizes and Prices

For small sinks, lavatory drain pipes, etc. 1/4" Dia. 15 Gauge				1/2" Dia. for 2 to 4" Drain Pipes, 12 Gauge				5/8" Dia. for 4 to 6" Drain Pipes, 10 Gauge			
No.	Lgth. Feet	Wt. Lbs.	List Price	No.	Lgth. Feet	Wt. Lbs.	List Price	No.	Lgth. Feet	Wt. Lbs.	List Price
41-B	6	1	$1.50	32-B	6	2	$1.75	37-B	25	10	$ 5.25
42-B	10	1 1/2	1.80	33-B	10	3	2.25	38-B	50	18	10.00
43-B	15	2	2.50	34-B	15	4 1/2	2.75	39-B	75	26	15.00
44-B	20	2 1/4	3.00	35-B	20	6	3.50	40-B	100	35	19.00
45-B	25	3	3.75	36-B	25	7	4.00				
46-B	50	6	5.00	37-B	50	13	7.00				

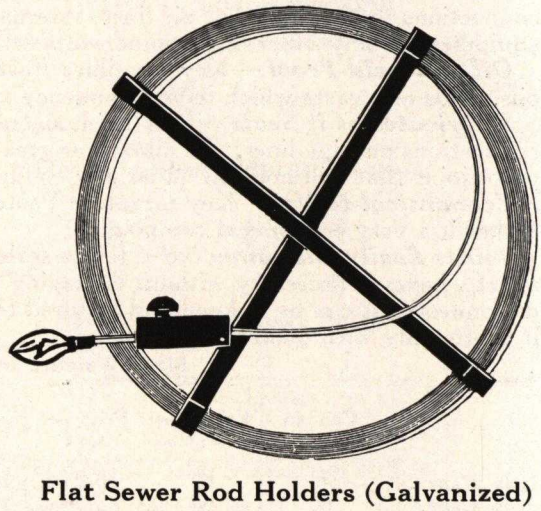
Frame for Holding Sewer Rods

A necessary aid for operating and holding Sewer Rod. Frame enables one man to do work. Made of heavy flat steel galvanized.

Sizes, Weights and List Prices

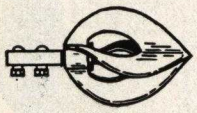


Size	Number	Length Feet	Weight Pounds	List Price
1/4 x 1/16-inch Small Pipe with flexible head only	42	25	2	$1.50
	42	50	4	2.00
	42	75	6	2.50
	42	100	8	3.00
1/2 x 1/16-inch Medium Pipe	43	25	3	2.40
	43	50	6	4.50
	43	75	9	6.00
	43	100	12	8.00
1/2 x 1/8-inch Medium Pipe	44	25	4	4.00
	44	50	8	6.00
	44	75	12	8.00
	44	100	16	10.00
3/4 x 1/16-inch Pipe 2 to 4-inch	45	25	4	4.00
	45	50	8	6.00
	45	75	12	8.00
	45	100	16	10.00
3/4 x 1/8-inch Pipe 4 to 6-inch	46	25	8	5.00
	46	50	16	7.00
	46	75	24	10.00
	46	100	32	13.00
1 x 1/8-inch Large Pipe or Sewers	47	25	12	6.75
	47	50	20	11.25
	47	75	28	14.00
	47	100	36	16.25
1 1/4 x 1/8-inch Large Pipe or Sewers	48	25	14	7.00
	48	50	27	11.00
	48	75	42	14.00
	48	100	56	17.50



Flat Sewer Rod Holders (Galvanized)

No. 1—For 1/4, 1/2, 3/4 x 1/16-inch	List Price $1.00
No. 2—For 3/4 x 1/8-inch	List Price 1.25
No. 3—For 1 x 1/8-inch, 1 1/4 x 1/8-inch	List Price 1.50



Revolving Spear Head—Bronze

For Sewer Rods, strong and durable for cleaning drains and cutting roots. Can be attached to any flat steel sewer rod with bolts or rivets.

No.	Size of Drain Inches	Diameter and Inches	List Price
1	2 to 4	1 1/4 x 2 1/4	$2.00
2	4 to 6	2 3/4 x 6 1/2	3.00
3	6 to 12	4 1/4 x 8 1/2	4.00

Revolving Spear Head and Root Cutter Heavy and Durable

Pipe Bending Springs

1 1/4-inch diameter, 2 1/4 pounds	List Price $0.65
1 1/2-inch diameter, 3 1/2 pounds	List Price .75

Extra Roller Heads

For 1/4 x 1/16-inch rods	List Price $0.20	For 3/4 x 1/16-inch	List Price $1.00
For 1/2 x 1/16-inch rods	List Price .38	For 1 x 1/8-inch	List Price 1.50
For 1/2 x 1/8-inch rods	List Price .38	For 1 1/4 x 1/8-inch	List Price 1.50

THE NORTHWESTERN CHEMICAL CO. MARIETTA, OHIO

104 State Street

A Norwesco Product

Cracked Boilers—Leaking Joints

Boiler SE-MENT-OL permanently repairs cracks or leaks in boilers and piping systems, regardless of the number of leaks or broken sections.

Pour Boiler SE-MENT-OL into the water of the boiler. Fire the boiler to cause circulation of water so that SE-MENT-OL is carried to leaking points. SE-MENT-OL coming in contact with the air at the leaks congeals and makes the repair.

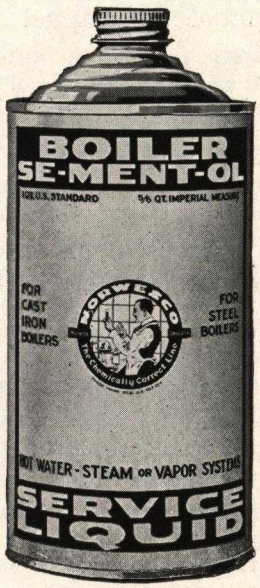
Continued firing for a few hours makes the repair permanent, and as the repair is elastic it will withstand expansion.

New Jobs

Before building a fire in the new job pour Boiler SE-MENT-OL into the finished job when filling with water. If a leak shows as the water raises, build a fire in the boiler and the leaks will be cured permanently —almost instantly.

Most small pores that would ordinarily show seepage become sealed and set without building a fire and are permanently cured when the fire is later started. Let SE-MENT-OL remain in the system.

One quart is usually sufficient for a small house job.



Cleaning

Boiler SE-MENT-OL poured into a steam or vapor vacuum boiler immediately relieves laboring of boiler due to grease and oil coatings.

Boiler SE-MENT-OL breaks the bond of oil coating and lets the steam release normally. The vapor will carry a cutting edge that will clean the piping system.

Oil and grease can be floated readily from the top of the boiler or can be skimmed off by using the surface drain tapping. Boiler SE-MENT-OL prevents oil from adhering to the metal by scouring the walls and coating the surface.

Prices

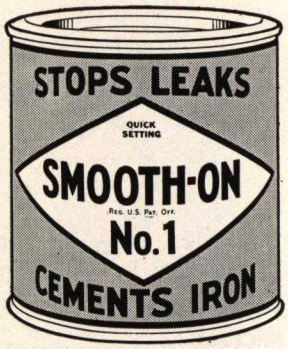
List per quart	$ 4.00
List per half-gallon	7.50
List per gallon	14.00

Suggested Dealer Discount 40% from the List

SMOOTH-ON MANUFACTURING CO., JERSEY CITY, N. J.

574 Communipaw Avenue

Smooth-On Iron Cements



The usefulness of these world-popular cements comes primarily from their property of solidifying into a metallic material and expanding while doing so. Seven kinds meet the needs of a very wide range of service conditions.

These Smooth-On preparations and their uses are as follows:

Smooth-On No. 1 and Smooth-On No. 2. Used for repairing breaks in castings, making tight joints and seams, and stopping leaks in boilers, pipe lines, pressure containers, etc. Applied as a paste or putty. Become hard as iron when metallized, and expand at the same rate. May be used on iron, brass, steel, copper, lead, aluminum, etc.; either alone or as a filling compound under a plate, and will withstand fire, water, steam, oil and very high pressures. No. 1 *Quick* and No. 2 *Slow* Hardening. Sold in 1-lb. and 5-lb. tins, and 25 and 100-lb. steel kegs, No. 1 is also sold in 7 oz. tins.

Smooth-On No. 3. Used for making screw-thread joints, coating gaskets and for sealing rivets, seams and joints in boiler and other plate metal construction. Leak-proof and time-proof at any temperature and pressure and cannot dry or blow out, shrivel, shrink, crack or move in any way. Lubricates in assembling screw threads and makes a tight joint that is easily taken apart. Sold as a paste, in 1 and 5-lb. tins and 25-lb. steel kegs ready for use.

Smooth-On No. 4. For filling surface defects in castings. When hardened has the color and appearance of cast iron and can be filed like iron. It makes good castings look better. Two grades: 4-A for fine-grained; and 4-B for coarse-grained castings. Sold in 1 and 5-lb. tins, and 25 and 100-lb. steel kegs.

Smooth-On No. 5. For caulking bell-and-spigot joints in cast-iron soil, water or gas pipes. Makes five times as many joints per pound as lead, requires no heat and is handy in corners, confined places and horizontal lines where caulking with lead is difficult. Sold in 1 and 5-lb. tins and 25 and 100-lb. steel kegs.

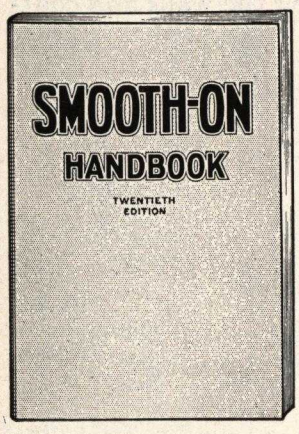
Smooth-On No. 6. A dark gray plastic putty, for making watertight joints on sky and vault lights, and for filling in seams, rivet heads, etc.; for water and weather-proofing of structural iron work. Sold in 1 and 5-lb. tins.

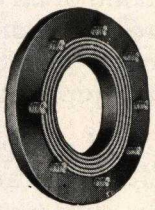
Smooth-On No. 7. For waterproofing, dustproofing, oilproofing and hardening concrete, brick or stone work. Waterproofs from the inside, on wet or dry surfaces. Sold in 5-lb. tins and 25 and 100-lb. steel kegs.

Smooth-On Iron Paint. A dark gray preparation for painting concrete, brick, or stone and to dust-proof concrete surfaces. Also used on iron, tin, or wood surfaces, roofs, etc. Sold in ½ and 1-gal. tins.

Smooth-On Cements are Packed in Cases as follows:

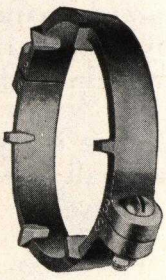
144—7-oz. tins 12—1-lb. tins
60—1-lb. tins 12—5-lb. tins
25-lb. and 100 lb. Steel Kegs





Smooth-On Coated Corrugated Iron Gaskets. For flanged joints on steam, water, gas or oil lines. Used by the largest power plants. Made in two types; narrow width as shown to fit inside of bolt holes, and full width extending to outer edge of flange. Sold in pipe sizes of 2-inch and larger.

Smooth-On Pipe Clamps. Used with Smooth-On No. 1 for stopping screw-thread leaks of steam, water, gas or oil without taking down the line or disturbing surroundings.



The clamp is merely put around the pipe with flat side against the fitting, the clamp bolts drawn up and Smooth-On No. 1 tamped into the groove with the convenient tool sent with each clamp for the purpose. Equi-distant inner spacing lugs keep the clamp concentric with the pipe and make the recess uniform and easy to fill. No interference with bolt heads and nuts of flanged joints.

Made in all pipe sizes from ⅜ to 12-in.

Write for Free Smooth-On Handbook

The Smooth-On Handbook is a 136-page reference book with 193 diagrams, pictures and practical hints on at least 200 different uses of Smooth-On.

In addition to complete description of and directions for applying all Smooth-On products, this book also explains which kind of Smooth-On should be used for given conditions, why and how the Smooth-On method is preferable, and what results have been obtained by others on the same kind of work.

Every plumber, heating contractor, shop foreman and power plant operator should have this information at hand for ready reference.

Smooth-On is obtainable from dealers and supply houses everywhere

D. A. STUART & COMPANY (LIMITED) CHICAGO, ILL.

General Offices—2735 South Troy Street

Quick and Direct Deliveries from These Branches

Atlanta, c/o Merchants and Manufacturers Whse. Co.
Boston, 50 Terminal St.
Buffalo, 350 Seneca St.
Chicago, 2733 S. Troy St.
Cincinnati, 1089 Gilbert Ave.
Cleveland, 5305 Euclid Ave.
Denver, 2133 Blake St.
Detroit, c/o Detroit Harbor Terminals
Kansas City, 20th & Kansas Ave.
Los Angeles, c/o Union Terminal Whse. Co.
Montreal, 931 Hibernia Rd.
New Haven, 165 Brewery St.
Philadelphia, 3517 No. Palethorpe St.
Pittsburgh, c/o Central Warehouse P. & L. E. R. R.
San Francisco, c/o Haslett Whse. Co.
St. Louis, 1322 Merchant St.
Toronto, 1170 Yonge Street

Threading Oils of Unique Quality

Three Carefully Developed Lines of Proved Saleability

Meeting Every Requirement of the Wholesale Plumbing and Heating Supply Trades

No. 1 (Green Label)



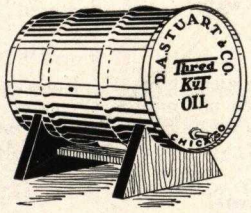
Sole Manufacturers of

Stuart's Thred Kut

(Patented Oct. 19, 1926)

Pipe Threading Oil

Equally efficient for power machines or hand dies. Flows freely at unusually low temperatures saving labor cost and reducing oil consumption. Never "burns out," gums, separates, changes in quality or becomes rancid irrespective of how long machine remain idle. An oil of absolute sterility, free from the slightest objectionable odor. Considered by competent engineering authorities a better threading oil than the best grade of lard oil at a considerably lower cost.



To secure smooth, velvety threads order trial drum Stuart's "Thred-Kut" Threading Oil. Very highly recommended.

No. 2 (Orange Label)

Stuart's

Plumber's Lard Oil

A carefully manufactured lard oil product developed especially for the requirements of the plumbing and heating trades. Reddish in color but transparent and free from objectionable odor. Will not solidify on cold days. Makes the "hard pull" easy and materially assists in cutting perfect threads. Thousands of cans are sold annually in almost every state in the Union, indicating complete satisfaction.



Printed Price List Covering entire Line will be mailed upon request.

Facts to Remember

Each of these three lines is supplied in crates of 12 labelled 1-gallon cans; single 5 or 10-gallon high quality wood jacket cans; and in 15, 30 and 55-gallon steel drums (with free faucet upon request.)

When desired imprinted labels having jobbers' name and address will be furnished at no extra cost. This individuality together with free imprinted circulars, free metal lithographed counter signs, free catalog pages, etc., presents a splendid resale proposition.

These products are guaranteed to give 100% satisfaction or may be returned for 100% credit.

No. 3 (Yellow Label)

Stuart's

Extra Winter Strained Lard Oil, Cpd.

Handled by supply houses especially for the particular man who wants old fashioned extra winter strained lard oil and is willing to pay the reasonable premium in price required for this special high quality lard oil.

Extra winter strained lard oil is very light in color and is sometimes called white lard oil, its use insuring maximum lubricating value for hand threading dies. Compounded with special material to give reasonably low cold test. This grade of lard oil is sometimes specified for use at high class residential construction jobs where oil stains must be avoided.

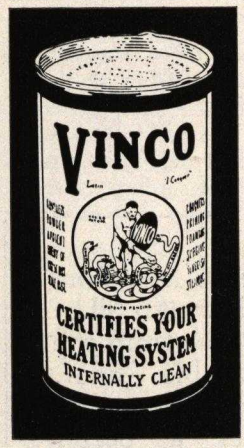


THE VINCO COMPANY, INC. NEW YORK, N. Y.

305 East 45th Street

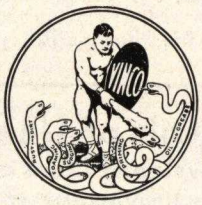
VINCO Cleans Heating and Hot Water Supply Systems

Vinco is the unique, insoluble *guaranteed powder cleanser* for heating systems and for hot water supply systems.



In 1½, 3, 5 and 10-Pound Cans only

Each minute grain of Vinco powder absorbs several times its own weight of oil, rust, grease and dirt. These larger grains of absorbed impurities then settle and are drained through the bottom.



Reg. U. S. Pat. Off.

Send for our booklets containing quantities and full directions. (Full information is also on every can).

In New and Remodeled Heating Systems, Vinco Prevents or Cures:

foaming, priming, surging, and slow steaming by removing all oil, grease, rust, core sand, scale and dirt without the labor of blowing boilers over the top.

Put a can of Vinco into the boiler as soon as the job is finished to *prevent* all chance of priming and foaming and cracked boiler sections, which most often result from priming and sudden slugs of cooled water.

Vinco Old Systems Once a Year

It adds years of life to the boiler and saves fuel, because it removes rust and scale, and prevents this deposit, which not only destroys the boiler, but causes serious fuel waste—even up to 50% of the total fuel consumption.

Quantities Required for All Heating Systems†

For systems having:	*For First Clean Out Steam or Vapor Systems	For Annual Cleaning Thereafter Pounds
up to 350 sq. ft. of installed radiation	3	1½
351 to 600 sq. ft. of installed radiation	5	2½
601 to 1100 sq. ft. of installed radiation	8	4
1101 to 1400 sq. ft. of installed radiation	10	5
1401 to 1800 sq. ft. of installed radiation	13	6½
1801 to 2100 sq. ft. of installed radiation	15	7½
2101 to 2700 sq. ft. of installed radiation	18	9
2701 to 3100 sq. ft. of installed radiation	20	10
3101 to 3700 sq. ft. of installed radiation	23	11½
3701 to 4200 sq. ft. of installed radiation	26	13
4201 to 4600 sq. ft. of installed radiation	28	14
4601 to 5000 sq. ft. of installed radiation	30	15

above 5000 square feet use an additional pound of Vinco for each additional 300 square feet of radiation. Half these quantities for annual cleaning thereafter.

**Hot Water Systems need half these quantities.*

†*All quantities based on installed radiation, not on boiler capacity.*

Our Laboratory Service, Free to Vinco Users Speeds the Cure of Complicated Puzzling Jobs

in most aggravated and complicated water line problems, (as when "badly doctored" by a succession of drastic chemical experiments in cleaning), many needless mechanical and piping changes have been saved by consulting this free laboratory service first, (Send for booklet explaining this service).

Vinco is a Thoroughly Safe Cleanser for Hot Water Supply Systems:

A tank holding 50 gallons of water requires 1½ pounds of Vinco.

Above 50 to 100 gallons, use 3 pounds.

Add one pound for each additional 100 gallons.

1. Shut off city water supply.
2. Empty water from system to convenient opening at top of tank.
3. Mix Vinco in hot water and pour through the tank opening. (Don't expect Vinco to dissolve).
4. Refill the system and heat the water (from 160° to 180°) for at least four hours, but it should not reach the boiling point.
5. After the four hours' heating, empty the hot water supply and flush the tank thoroughly; using a hose through opening, and keeping heater draw cock wide open. (This will clean the heater too). Then refill with clean water.

The Three-Fold Vinco Guarantee

1. Vinco is Absolutely Harmless in Ingredients. It contains no potash, lye, soda of any kind, oil, acid or other harmful ingredient. *Boiler manufacturers advise Vinco.*
2. Money Refunded if Vinco is Not Thoroughly Satisfactory when used according to directions.
3. Our Free Laboratory Service Assures Success in "badly doctored" cases.

Vinco Not Sold in Bulk or Under Any Other Name

For safety and complete success, ask for "Vinco" in 1½, 3, 5 or 10 pound lithographed cans, with our trade mark. *Patents are pending on the process and method of application. Unlawful imitation will be prosecuted.*

Vinco Distributors

Vinco is sold by boiler manufacturers and jobbers throughout the United States.

List-Price

$1.50 per pound for 3, 5 and 10-pound cans.
$2.55 per can for special Kit-Kan of 1½ pounds.
Liberal discounts to the trade.

Standard Shipping Cases of 120 Pounds

Contain four 10-pound, ten 5-pound and ten 3-pound cans, or your own selection of these sizes to total 120 pounds.

Standard Case or Kit-Kans (1½ lbs.) Contains 108 Pounds

72 cans to the case.

Send for free imprinted jobbers' literature.

Vinco Boiler Leak Seal



1-Quart Cans only

A new, different liquid leak seal. Unique in that it does not induce priming and foaming. It makes speedy and permanent repairs of all boiler and heating system leaks.

It is fine to tighten up new jobs. The directions are simple to follow.

Quantities

Steam and Vapor Systems

Use 1 quart Vinco Liquid Boiler Seal to each 6 square feet *grate* area.

Hot Water Systems

Use 2 quarts Vinco Liquid Boiler Seal to each 6 square feet *grate* area.

Packed 3 dozen cans to the case.

List $5.00 a can, liberal discounts to the trade.

THE A. WILHELM COMPANY READING, PA.

Established 1857

Makers of Paints, Colors, Lacquers, Enamels, Varnishes, Plumbers' Cement

Standard Pipe Joint Compound

"The Pipe Cement of the Nation"

Standard Pipe Joint Compound is a pink colored, heavy, elastic cement mixed ready for use and made expressly for sealing joints of steam, gas and water pipes, flanges, gaskets, bolts and screws.



This product has exceptional qualities because: It makes a tight joint and will resist all forms of corrosion.

It enables disconnection of the joint after years of service without damage to the pipe or coupling.

It will not harden in the can.

Used by some of the largest sprinkler installation companies in the country and accepted by all insurance companies as very satisfactory against leakage.

Furnished in convenient friction top cans of 1, 5 and 10 lbs.; 25 and 50 lb. pails, 100 and 300 lb. casks.

Brass Pipe Joint Compound

A product compounded expressly for use on brass pipe and fittings containing special pigments due to the particular composition of brass. Mixed ready for use. Furnished in 1, 5 and 10 lb. cans, 25 and 50 lb. pails, 100 and 300 lb. casks.

Royalute Aluminum Elastic Cement

This is a product furnished in powdered form made especially for use by the discriminating plumber and steam fitter who desires to complete the operation and not show the usual red cement in the joints. It is a light gray in color. It is particularly adapted for joints in bathrooms, kitchens and on all joints visible after the operation is completed. It is mixed with boiled linseed oil to a paste consistency as desired. Furnished in 1, 5 and 10 lb. cans, 25 and 50 lb. pails, 100 and 300 lb. casks.

Royalbestos Stove and Furnace Cement

An exceedingly high quality product for foundations of furnaces, heaters and stoves. Excellent for cementing joints exposed to intense heat for iron will melt where this cement will stand. It is odorless, indestructible, fire and acid proof. It will not shrink or crack and makes a gas-tight joint. It comes in paste form packed in 1, 5 and 10 lb. cans, 25 and 50 lb. pails, 100 and 300 lb. casks.

Royal Stix-T-Iron Cement

A finely ground powder which may be worked into a stiff paste by the addition of a little water and then applied and smoothed with a knife over flaws in castings and cast iron pipe. It sets firmly in an hour and dries hard for use within twenty-four hours. When dry it takes the color of iron and has the durability of the iron itself. It is an excellent product for caulking soil pipes, filling in blow holes in steel or iron castings, repairing leaks in steam, gas, oil and water pipes. Furnished in 1, 5 and 10 lb. cans, 25 and 50 lb. pails, 100 and 300 lb. casks.

Empire Asbestos Roof Coating

Furnished in three popular colors, Red, Green and Black. A high grade, medium priced, serviceable roof paint that may be applied with a heavy bristle brush or a special spreader brush. It sets quickly, dries slowly and remains elastic indefinitely. Just like adding a new layer of roofing except that there are no seams or laps to spring open. Furnished in 1 and 5 gallon cans, 30 and 50 gallon barrels.

Bronzing Liquids

A complete line of durable bronzing liquids whether for interior or exterior use. Special heat resisting formulated products. Our liquids may be used to spray, brush or dip.

A Finishing Product for Your Every Need

THE CANFIELD RUBBER CO. BRIDGEPORT, CONN.

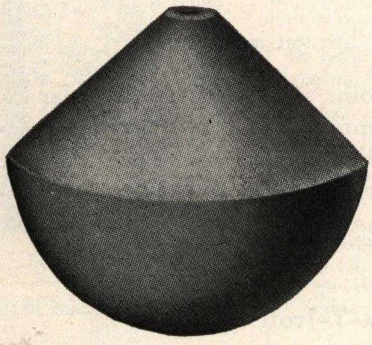
Incorporated 1883 by Special Charter
from State of Connecticut

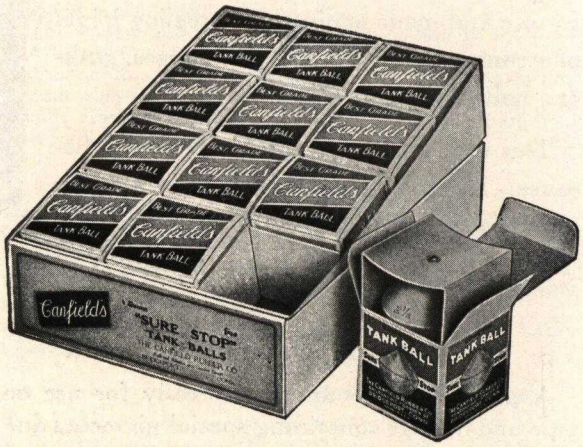
Canfield's

Main Office and Factory
Railroad Avenue and Garden Street

Plumbers' Rubber Specialties

"Sure Stop" Tank Balls

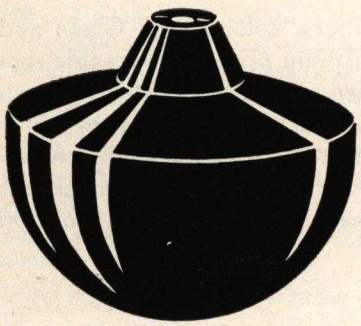




All Rubber Cone Shape, Heavy Reinforced Top, Soft Bottom

Made in sizes: 2, 2¼, 2½, 2⅝, 2¾, 3 inches. Usual packing: 1 dozen to the box. Also packed in individual boxes, nested in container of 1 dozen, as illustrated, ball suspended from cardboard insert.

"Primo" Tank Balls





All Rubber, made of highest quality Pure Gum Stock, one piece. Moulded construction. Made in sizes Medium and Large. Packed individually, nested in container of one dozen, as illustrated.

Write for Prices and Discounts

Canfield Rubber Company's Plumbers' Specialties



Surestop Basin and Bath Stoppers

Made of high grade white rubber. Stopper compound fitted with new patented nickel brass fittings.

Sizes: 3/4, 7/8, 1, 1 1/8, 1 1/4, 1 3/8, 1 1/2, 1 5/8, 1 3/4 inches.



Plain Stoppers

Furnished with or without a plain nickel brass stud and ring. Made of white or gray rubber.

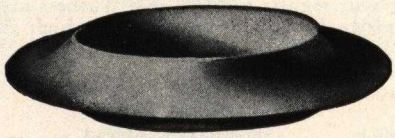
Sizes: 3/4, 7/8, 1, 1 1/8, 1 1/4, 1 3/8, 1 1/2, 1 5/8, 1 3/4, 2, 2 1/2 inches.



Solid Stoppers

Furnished in sizes: 1, 1 1/8, 1 1/4, 1 3/8, 1 1/2, 1 5/8, 1 3/4 and 2 inches.

Syphon Washers—Featheredge

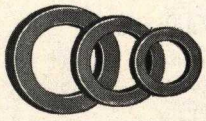


Regular Sizes

No.	Size Inches	Regular Width of Flange Inches	No.	Size Inches	Regular Width of Flange Inches
407	1	5/8	502	1 5/8	5/8
500	1 1/8	5/8	321	1 3/4	5/8
112	1 1/4	5/8	503	1 7/8	5/8
501	1 3/8	5/8	322	2	5/8
111	1 1/2	5/8			

Can also be had in all sizes, narrow flange 9/16-inch wide and extra wide flange 11/16-inch wide.

Union Washers



Made in three sizes, dimensions given for Crane Unions.

Crane or Regular Unions

Regular Size Inches	Inside Diam. Inches	Outside Diam. Inches	Thick Inches
1/8	7/16	3/4	3/32
1/4	1/2	3/4	3/32
3/8	5/8	15/16	3/32
1/2	3/4	1 3/16	3/32
3/4	15/16	1 3/8	3/32
1	1 1/8	1 5/8	3/32
1 1/4	1 1/2	2 1/8	3/32
1 1/2	1 11/16	2 7/16	3/32
2	2 3/16	2 13/16	3/32
2 1/2	2 3/4	3 1/4	3/32
3	3 1/4	4 1/2	3/32

Large Size Inches	Inside Diam. Inches	Outside Diam. Inches	Thick Inches
3/8	13/16	1 7/32	1/8
1/2	13/16	1 3/8	1/8
3/4	1 5/32	1 5/8	1/8
1	1 11/32	1 29/32	1/8
1 1/4	1 11/16	2 3/16	1/8
1 1/2	1 3/4	2 7/16	1/8
2	2 9/32	3 1/32	1/8

Also made for Standard and Lipp Unions.

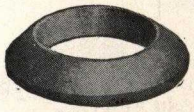
Closet Spud Washers

Cut or Plain Spud



Size Inches	Inside Diameter Inches	Outside Diameter Inches	High Inches
1 1/4	1 1/2	1 7/8	5/8
1 1/2	1 13/16	2 3/16	5/8
2	2 1/4	2 5/8	5/8

Beveled Spud



No.	Size Inches	Inside Diam. Inches	Outside Diam. Inches	High Inches
284	1 1/4	1 9/16	2 5/8	7/16
285	2	2 1/4	3 1/8	7/16

Mack Gaskets

No.	Style	Extreme Inside Diameter Inches	Extreme Outside Diameter Inches	Height Inches
68	Basin	1 1/4	2	3/8
1024	Special	1 1/4	2 5/16	3/8
369	Bath	1 5/8	2 5/16	3/8
370	Bath	1 7/8	2 9/16	3/8



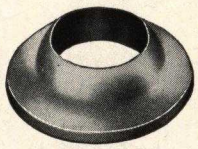
No. 68

Flanged Spud



No.	Size Inches	Inside Diam. at Top Inches	Inside Diam. at Base Inches	Outside Diam. of Flange Inches	High Inches
374	1 1/4	1 7/8	1 5/8	2 1/2	5/8
352	1 1/2	1 15/16	1 7/8	2 3/4	5/8
373	2	2 3/8	2 1/4	3 1/4	11/16
465	Special	2 5/16	2 5/16	3	11/16

Sink Gaskets



No. 62

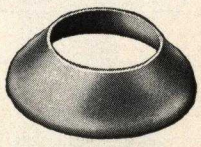
Known also as Mack Sink Gasket or Washer.

1 7/8 inches inside diameter at base.

1 1/2 inches inside diameter at top.

2 5/8 inches extreme outside diameter.

7/8-inch extreme height.



No. 1534—New Style Sink Gasket

Cut Gaskets and Washers for use in Mack Basin and Bath connections, also P. O. Plug washers furnished in any size required. Specify inside and outside diameters and thickness when ordering.

Slip Joint Washers

Made in the following sizes:



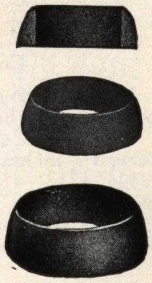
Inside Diam. Inches	Outside Diam. Inches	Thick Inches
1/4	1/2	3/16
3/8	5/8	3/16
1/2	3/4	3/16
5/8	7/8	3/16
3/4	1	3/16
7/8	1 1/8	3/16
1	1 1/4	3/16

Inside Diam. Inches	Outside Diam. Inches	Thick Inches
R1 1/4	1 1/2	3/16
1 3/8	1 5/8	3/16
R1 1/2	1 3/4	3/16
1 5/8	1 7/8	3/16
1 3/4	2	3/16
1 7/8	2 1/8	3/16
R2	2 1/4	3/16

Any size made to order. Give inside and outside dimensions, also thickness wanted.

Beveled Slip Joint Washers or Cone Washers

No.	Height Inches	Inside Diameter Inches	Outside Diameter at Base Inches
208	1/4	7/16	19/32
312	1/4	1/2	23/32
311	1/4	5/8	29/32
689	5/16	7/16	3/4
1104	11/32	3/8	11/16
495	11/32	3/8	23/32
494	11/32	1/2	3/4
555	3/8	3/8	9/16
873	3/8	7/16	7/8
488	1/2	7/16	5/8



Canfield Rubber Company's Plumbers' Specialties



Fuller Balls

For Hot and Cold Water

Made in sizes listed below of the new blunt pattern type in our four regular grades of rubber, also in our Special Graphite Fibre Compound and high grade Asbestos Stock.

Sizes: 3/8, 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8, 1, and 1 1/4 inches.

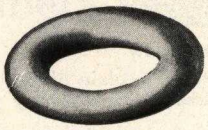
Round Flange Rings

All styles for all purposes.

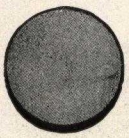
Rings — Floor Flange, Plunger Slip Joint, Bath Spray, etc.

Also for Gauge glasses.

Also Square flange and Perfect.



Round Flange



No. 748

Ball Cock Washers

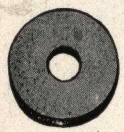
No. 746—Dale, 13/16x1/8-inch.
No. 574—Special (Beveled edge) 5/8x1/8-inch.
No. 748—Wolff, 5/8x1/8-inch.
No. 749—Wolff Junior, 9/16x1/8-inch.



No. 749

Other Solid Styles are

No. 491—35/64x1/8-inch; No. 782—11/16x1/8-inch; No. 403—47/64x1/8-inch.



No. 1116

Hole Type Washer

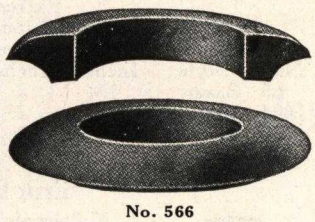
No. 1116—Standard, I. D. 13/64-inch, O. D. 19/32-inch, Thickness 1/8-inch.

No. 747—I. D. 3/16-inch O. D. 9/16-inch, Thickness 1/8-inch.

Mansfield, I. D. 1/4-inch, O. D. 5/8-inch, Thickness 9/64-inch.

Syphon Packers

No.	Inside Diameter Inches	Outside Diameter Inches
566	1 1/4	2 1/4
583	R1 7/8	3 1/4
504	R1 15/16	3 1/4
584	2 1/16	3 1/4



No. 566

Force Cups



No. 815

Furnished rubber only with or without valve as specified.

Long wooden handles may be had, if desired, at a small extra charge.

No. 159—Regular Force Cup, 4 inches O. D. at base, 5 inches high.

No. 338—Junior Force Cup, 4 inches O. D. at base, 4 inches high.

No. 815—Special Cup, 4 inches O. D. at base, 5 inches high.

Low Down Style

No. 400—4 5/16 inches outside diameter at base, 3 inches high.

No. 500—5 1/4 inches outside diameter at base, 3 1/2 inches high.

No. 1252—4 1/2 inches outside diameter at base.

Other sizes and styles also furnished, information on request.

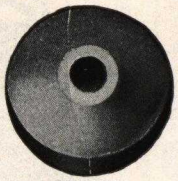


No. 1252

Beveled Bibb Washers

Moulded

For Compression Work



No. 992

No.	Size	Inside Diameter Inches	Outside Diameter Inches	Thick Inches
949	1/4-inch Regular	3/16	9/16	3/16
888	3/8-inch Regular	3/16	5/8	3/16
991	1/2-inch Regular	3/16	3/4	1/4
992	5/8-inch Regular	3/16	13/16	1/4
993	3/4-inch Regular	7/32	15/16	1/4
990	3/8-inch Large	3/16	11/16	3/16
890	1/2-inch Large	3/16	25/32	1/4
892	5/8-inch Large	3/16	7/8	1/4

Besides our four regular grades these Washers are made of our **Special Graphite Fibre Compound,** also high grade Asbestos stock which is specially adapted for hot water, besides being equally useful for cold water.

Made in hard, medium or soft cure as specified.



No. 179

Bibb Washers

Moulded

For Compression Work

No.		Inside Diameter Inches	Outside Diameter Inches	Thick Inches
747	For 1/4-inch Faucet	3/16	9/16	1/8
179	For 3/8-inch Faucet	3/16	21/32	1/8
180	For 1/2-inch Faucet	3/16	25/32	1/8
181	For 5/8-inch Faucet	3/16	13/16	1/8
182	For 3/4-inch Faucet	7/32	29/32	1/8
183	For 1 -inch Faucet	7/32	1 1/32	1/8
854	For 1 1/4-inch Faucet	3/16	1 1/4	1/8

Special useful sizes are also made as follows:

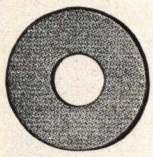
No.	Inside Diameter Inches	Outside Diameter Inches	Thick Inches
1116	13/64	19/32	1/8
1108	13/64	11/16	1/8
600	3/16	47/64	1/8

Besides our four regular grades these Washers are made of our **Special Graphite Fibre Compound,** which is specially adapted for hot water, besides being equally useful for cold water.

Top Bibb Washers

Has small hole to fit stem closely. Made of Wytex frictioned woven fabric of the highest quality and maximum durability. Also made in Compo Black.

	Inside Diam. Inches	Outside Diam. Inches	Diam. Inches
For 3/8-inch Faucet	1/4	15/16	3/32
For 1/2-inch Faucet	5/16	1 1/8	3/32
For 5/8-inch Faucet	5/16	1 1/4	3/32
For 3/4-inch Faucet	5/16	1 3/8	3/32
For 1-inch Faucet	5/16	1 1/2	3/32





No. 146

Low Pressure Diaphragms

For use on low pressure heating system.

Made of high-grade rubber with two-ply duck insertion, in the following sizes:

No. 146—6 inches.
No. 147—7 inches.
No. 148—8 inches.
No. 149— 9 inches.
No. 150—10 inches.
No. 443—12 inches.

Also to be had in 7/8-inch "low crown."

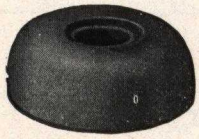
No. 155—7 inches.
No. 611—7 3/4 inches.

Canfield Rubber Company's Plumbers' Specialties

Recess Bumpers

Made of Gray, White or Red Rubber, with a recess to permit a nail or screw head being thoroughly countersunk.

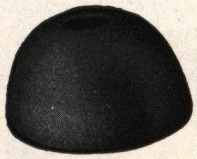

No. 74

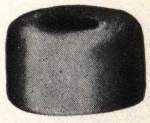

No. 342


No. 391


No. 11

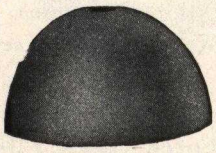

No. 1035

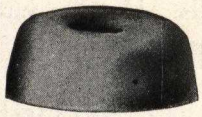

No. 386


No. 423


No. 345


No. 9


No. 308


No. 970

No.	O. D. Inches	Height Inches	Diam. Recess Inches	No.	O. D. Inches	Height Inches	Diam. Recess Inches
74	1/2	7/32	7/32	970	31/32	25/64	3/8
11	5/8	5/16	1/4	9	11/16	7/16	9/32
391	19/32	7/16	7/32	345	23/32	1/2	3/16
423	3/4	7/16	7/32	386	15/16	1/2	1/4
1035	3/4	3/8	9/32	308	31/32	19/32	5/16
342	21/32	3/8	5/16	945	1 1/8	21/32	3/8

Slotted Screw Bumpers


No. 327

No. 327
3/4-inch head.

No. 328
7/8-inch head.

No. 329
1-inch head.

Made in full size of Gray, White or Red Rubber, with No. 10 Wood Screw securely moulded in.

Chair, Cane and Crutch Tips

For Bathroom Stools

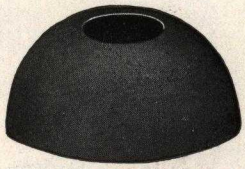


Our No.	Trade No.	Size, Inches
627	15	3/8
628	16	1/2
629	17	5/8
351	18	3/4
630	19	7/8
631	20	1
632	21	1 1/8

Seat Hinge Bumpers

Made of Gray, White or Red Rubber for use on Post Hinge Closet Seats.


No. 73


No. 287

No. 73
1 3/16-inch out. diam.
1/2-inch hole.
3/8-inch high.

No. 287
1 3/16-inch out. diam.
3/8-inch or 1/2-inch hole.
9/16-inch high.

No. 571
1 1/16-inch out. diam.
3/8-inch hole.
5/16-inch high.

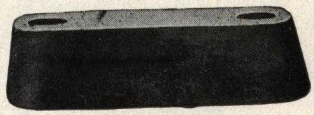
No. 673—Special for Cowan Seat

1 1/8-inch outside diameter. 7/16-inch hole. 1/16-inch off center. 3/8-inch high.

Oblong Bumpers

Made of Gray, White or Red Rubber.

No. 467—1 5/8 inches long. 1/2-inch wide. 3/8-inch high.
No. 468—2 1/8 inches long. 1/2-inch wide. 3/8-inch high.
No. 476—2 1/2 inches long. 1/2-inch wide. 1/2-inch high.


No. 467

Tack Bumpers

Made of Gray, White or Red Rubber, with 3/8 or 1/2-inch long brass tack, as specified.

No. AA—7/8-inch head. No. 00—1/2-inch O. D.; 1/2-inch high.


No. BB—3/4 inch head.


No. 1—5/8 inch head.


No. 2—1/2 inch head.


No. 3—3/8 inch head.

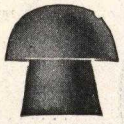

No. 104

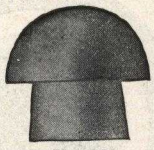
Mushroom Bumpers

Made of Gray, White or Red Rubber.

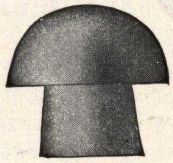

No. 104A

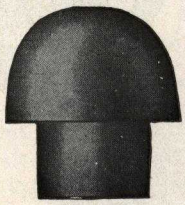

No. 200


No. 200A


No. 371


No. 371A


No. 372

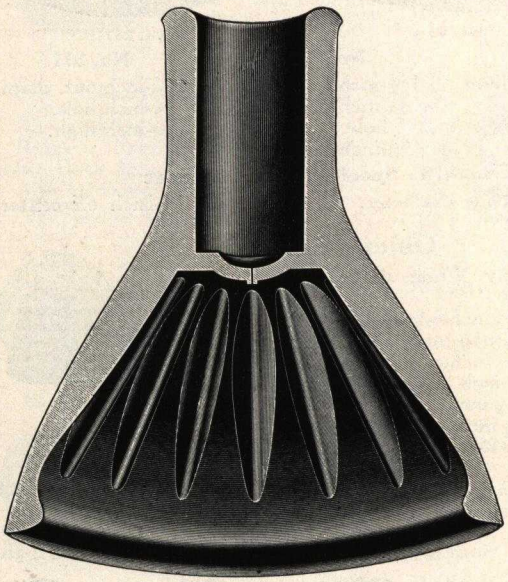

No. 428

No.	Head Dia. In.	Head Ht. In.	Stem Dia. In.	Stem Lgth. In.	No.	Head Dia. In.	Head Ht. In.	Stem Dia. In.	Stem Lgth. In.
104	11/32	3/16	3/16	3/16	371	3/4	3/8	17/32	3/8
104-A	1/4	3/16	3/16	3/16	371-A	3/4	3/8	3/8	3/8
402	5/8	11/32	5/16	9/32	372	7/8	3/8	17/32	7/16
200	5/8	5/16	7/16	7/16	428	15/16	19/32	19/32	15/32
200-A	5/8	5/16	7/16	5/16					

Note—All Bumpers shown are actual size

DRYDEN RUBBER COMPANY — CHICAGO, ILL.

1014 South Kildare Avenue
Detroit Office—General Motors Building



Dryden Ribbed Force Cups

Furnished in
Two Sizes—4-inch and 6-inch
Two Colors—Red or Grey
With or without Handles—30 inches

Minimum quantity 4-inch shipped ½ gross. Shipping weight 42 pounds. Handles bundled and shipped separately—weight of ½ gross 47 pounds.

Strength—Force—Long Life

EXCELSIOR LEATHER WASHER MFG. CO., INC. — ROCKFORD, ILL.

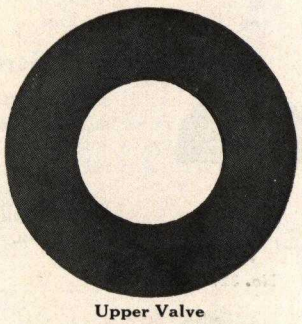
720-730 Chestnut Street



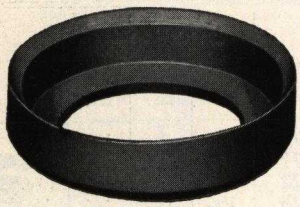
Lower Valve

X-L Upper and Lower Valve Leathers

Standard Number	Cylinder Size Inches	Outside Diameter Inches	List Price Per Hundred	List Price Per Gross
.....	2	2½	$10.05	$14.50
0.....	2¼	2¾	12.50	18.00
1.....	2½	3	14.60	21.00
1½.....	2¾	3¼	17.35	25.00
2.....	3	3½	19.10	27.50
2½.....	3¼	3¾	22.90	33.00
3.....	3½	4	26.05	37.50
4.....	4	4½	33.00	47.50
5.....	4½	5¼	41.65	60.00



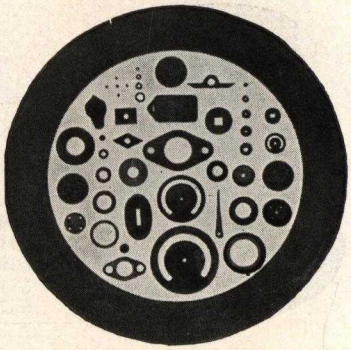
Upper Valve



Oak Cup Packing

X-L Oak Cup Packings

Outside Diameter Inches	List Price Per Hundred	List Price Per Gross	Outside Diameter Inches	List Price Per Hundred	List Price Per Gross
1	$ 5.20	$ 7.50	3½	$33.30	$48.00
1¼	6.60	9.50	4	43.00	62.00
1½	9.00	13.00	4½	52.00	75.00
1¾	11.80	17.00	5	66.00	95.00
2	13.90	20.00	5½	75.00	108.00
2½	18.05	26.00	6	88.90	128.00
3	22.55	32.50			



Cup Packings furnished without holes in bottom, or with any size hole, without extra charge.

Subject to Discount

C-D-S PRODUCTS CORPORATION MUNCIE, IND.

General Sales Offices
230 North Canal Street
CHICAGO, ILL.

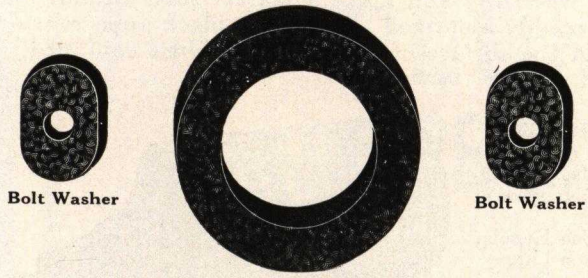
Executive Offices and Factory
McGalliard Road East of State Rd. 67
MUNCIE, INDIANA

BRANCH OFFICES

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Pittsburgh, Pa.
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New Orleans, La.
Los Angeles, Cal.
Portland, Ore.
San Francisco, Cal.
St. Louis, Mo.
Dallas, Texas
Des Moines, Iowa
San Antonio, Texas

C-D-S PLUMBING SPECIALTIES

The C-D-S Waterproof Felt Closet Bowl Gasket

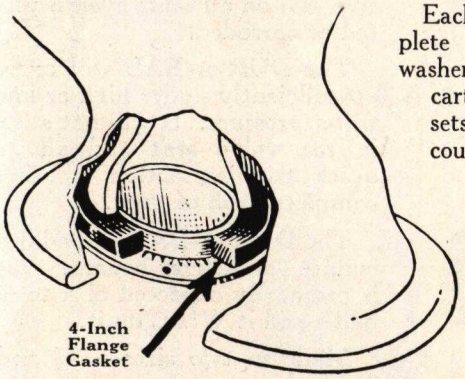


The Peter E. Snow's waterproofing process is exclusively available in the C-D-S CLOSET BOWL GASKETS.

For fifteen years this gasket has been pronounced by Master Plumbers everywhere as the ideal packing for setting or re-setting a closet bowl.

The C-D-S Closet Bowl Gasket is very simple to use. It is only necessary to place the gasket in the recess of the closet bowl flange, around the drain pipe, being sure that it lays even with the top of the pipe; then, the felt bolt washers are placed between the brass bolt washers and the bowl and the bolts drawn tight, acting as a cushion, preventing the breaking or chipping of the closet bowl.

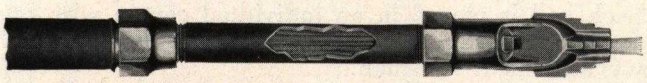
The illustration shows the easy application; it takes only a fraction of the time necessary to set closet bowls by ordinary methods. If for any reason, it is necessary to detach the bowl, the same gasket may be used when re-setting with the assurance of a watertight connection. Will not deteriorate or lose its waterproof qualities over years of service.



Each is packed complete with stud bolt washers in an individual carton, shipped in sets of twelve, in a counter display carton, ready to use—No heat required—Leaves no stains on the floor.

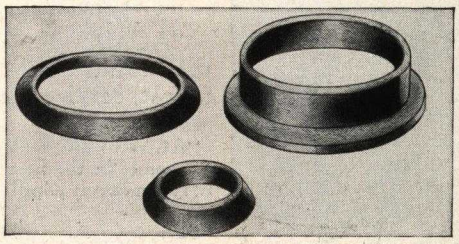
List Price, Each $0.50

C-D-S Water Operated Auger



The C-D-S Water Operated Auger is used for boring for a pipe without digging up the ground; cleaning a sewer; cleaning out a stop box. The First Job Pays For It. Last a life time. Write for further particulars.

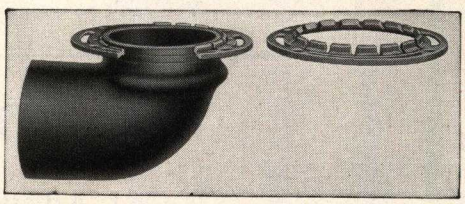
Miscellaneous C-D-S Gaskets and Washers



The C-D-S Products Corporation is in a position to furnish many types of gaskets and washers such as Closet Spud, Pump, Hose, Slip Joint—in fact, practically any kind desired; furnished either waterproofed, oil-proofed, or char-proofed (heat-treated), as desired. The illustration above shows a few of the C-D-S washers.

Send us samples or blue-print showing your requirements and we will be glad to furnish samples and quote prices.

C-D-S Brass Closet Flange



The C-D-S Brass Closet Flange is exceptionally simple in construction, economical in cost, and efficient in operation.

It is easily and quickly installed by driving down with a calking iron each prong a little at a time, until they become level, thereby locking the flange against the Durham pipe, or the cast iron bend with a rigid grip. Packed complete with screws in individual carton.

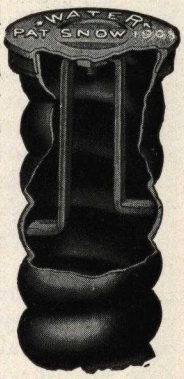
Furnished in brass I. D. 4-inch. O. D. 7-inch.

List Price.....Each $1.50

C-D-S Adjustable Stop Box Repair Cover



Many Plumbers, Gas and Water Company's have unconditionally adopted this C-D-S Stop Box Repair Cover as it can be used in inaccessible places; is economical and is positively the only successful stop box repair cover on the market.



It is being used on new boxes because of its exceptional simplicity and merit, although it was originally intended merely for repair purposes.

The Wrought Iron Lock can be sprung in or out to fit any size box. Size 2½-inch, weight 2 pounds, each $0.75. Size 3-inch, weight 3 pounds, $0.85 each.

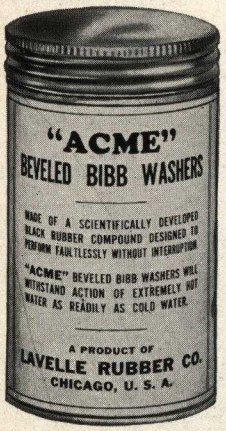
Ask your jobber for them or write us for further particulars.

LAVELLE RUBBER COMPANY — CHICAGO, ILL.

320 Illinois Street

Branch Office—1909 East Kenwood Boulevard, Milwaukee, Wis.

"ACME" Beveled Bibb Washers



A unique feature in connection with "ACME" Bibb Washers is the Screw Top Can in which they are packed in units of 100. This packing method greatly appeals to the Plumber as it affords a practical container that can be placed in the repair kit. Keeps the washers clean and easily found.

This is not "just another Bibb Washer" but one designed to perform faultlessly without interruption. "ACME" Bibb Washers are made of an exceptionally tough black rubber compound that offers resistance to the action of extremely hot water as readily as cold water.

"ACME" Bibb Washers will overcome rapping or chattering of the faucet and will not swell nor become grooved or cut on the seating surface.

"ACME" Bibb Washers allow a full waterway and make a perfect seat without effort.

"ACME" Beveled Bibb Washers are readily identified by their jet black appearance and the brand "ACME," which is molded in the surface of each washer. Once equipped on a faucet, service complaints are eliminated.

"ACME" Bibb Washers are made in the beveled type only, in seven popular sizes.

Trade Size	Actual Diameter
¼-inch Regular	9/16-inch
¼-inch Large	19/32-inch
⅜-inch Regular	⅝-inch
⅜-inch Large	11/16-inch
½-inch Regular	¾-inch
½-inch Large	25/32-inch
⅝-inch Regular	13/16-inch

Packed in Screw Top Cans containing 100.

The "ACME" Handipak contains a handy assortment of 100 "ACME" Bibb Washers in seven popular sizes as follows:

20	¼-inch Regular
10	¼-inch Large
25	⅜-inch Regular
15	⅜-inch Large
20	½-inch Regular
5	½-inch Large
5	⅝-inch Regular

A Washer for Practically Every Purpose.



Specify "ACME" HANDIPAK when assortment is wanted.

You can't go wrong when "ACME" Bibb Washers are installed.

DUR-A-BAL

"Reg. U. S. Pat. Off."

A distinctly different tank ball

Durable—Sturdy—Rugged—Well Built—Guaranteed 3 Years

The **DUR-A-BAL** has been intelligently designed to overcome all objections common to tank balls. It is the perfected result of scientific study and experiments.

The **DUR-A-BAL** is made of the best grade of black gum rubber throughout. It will not swell, elongate, collapse nor become distorted and will withstand the action of alkaline waters. Securely vulcanized in the neck is a heavy brass spud tapped to take the standard lift wire.



The practical shape is such as to permit of its being molded in a one-piece unit thereby eliminating all danger of seam separation. The top is slightly concaved and semi-flexible, which feature automatically allows the Ball to adjust itself in the outlet valve in case the lift wire should be out of alignment. The bottom is spherical in shape thereby providing a full seating surface on all style valves and being made of soft velvety rubber will make a positive seal on all seats even if pitted or corroded.

The **DUR-A-BAL** will operate efficiently under high or low water pressure. It will not stick in the valve seat and allows quick tripping action nsuring complete flush of tank.

The **DUR-A-BAL** is made to endure—to deliver beyond what is ordinarily expected of a tank ball—and it WILL do it.

Made in two sizes—2½ and 2¾ inches.

The **DUR-A-BAL** is packed with unusual care. Each ball is placed in an individual carton with one dozen in an attractive two-color counter display which acts as a silent salesman.

Packed one gross to a shipping carton.

Catalog "F" covering complete line furnished on request.

"U. S." ROYAL

RUBBER PLUMBING SPECIALTIES

Preferred by

MASTER PLUMBERS

Sold exclusively through

PLUMBING SUPPLY WHOLESALERS

United States Rubber Company

1 MARKET STREET

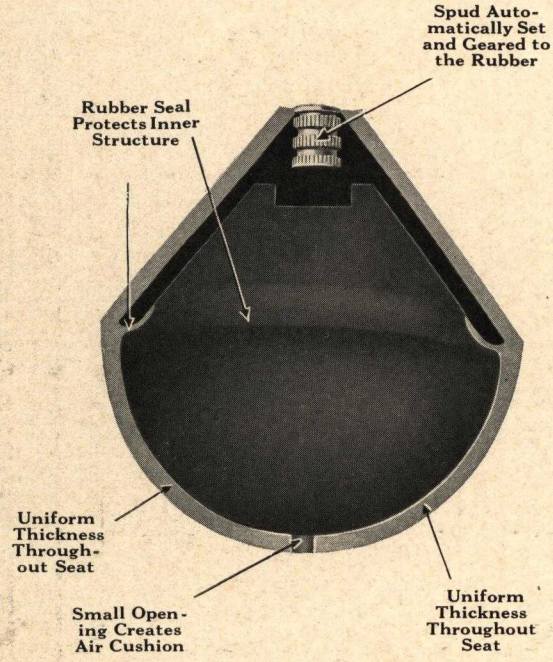
PASSAIC, NEW JERSEY

United States Rubber Company

1 MARKET STREET, PASSAIC, NEW JERSEY

RUBBER PLUMBING SPECIALTIES

THE "U. S." ROYAL FLUSH BALL



The "U. S." ROYAL Flush Ball is scientifically built to make tight on any Douglas type of valve, to hold its shape in service, and to withstand deterioration under normal temperatures.

The "U. S." ROYAL Flush Ball is hand made and of the "blown" type of construction. It has been tested impartially in the laboratories of the largest manufacturers of closet equipment. Such tests have always proved conclusively that the air cushion provided by the blown type of construction enables the ball to "make tight" more consistently than balls of any other type.

Uniform thickness throughout the seat of the "U. S." ROYAL is assured by the scientific manner in which the rubber compound is prepared.

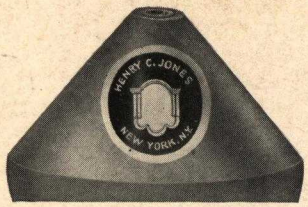
The compound, as well as the entire structure, are designed to hold the ball in shape under the most severe strains of service.

An additional feature of the "U. S." ROYAL is the seal of tenacious rubber that protects the inner structure, particularly at the base of the cone.

The spud is automatically set and geared to the rubber.

Sizes

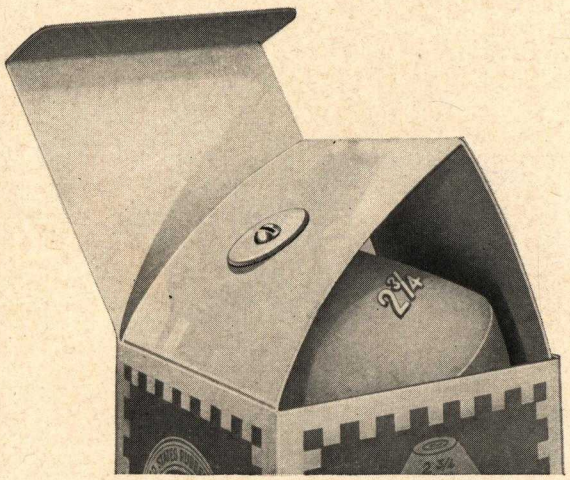
P-1—2 inches.
P-2—2¼ inches.
P-3—2½ inches.
P-4—2⅝ inches.
P-5—2¾ inches.
P-6—3 inches.



Advertise Your Organization on Every Flush Ball You Sell

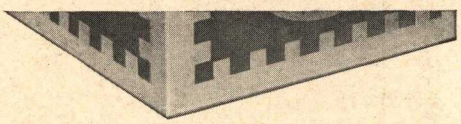
Your private brand or your trademark can be featured in two colors on "U. S." ROYAL Flush Balls.

And there is no extra charge for this feature when the balls are ordered in sufficient quantities. Write for further information.

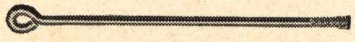


Packed in Attractive Individual Containers One Dozen in a Box

Every "U. S." ROYAL Flush Ball is screwed to the top of the individual container in which it is packed.



With Tank Ball Stems



One dozen 5-inch stems packed with every box of 12 "U. S." ROYAL Flush Balls without extra charge.

Sold Exclusively thru ~
PLUMBING SUPPLY WHOLESALERS

United States Rubber Company

1 MARKET STREET, PASSAIC, NEW JERSEY

RUBBER PLUMBING SPECIALTIES

ASSORTMENTS OF FAUCET WASHERS



The following types of "U. S." ROYAL Faucet Washers are now available in assortments packed in the new patented-top can.

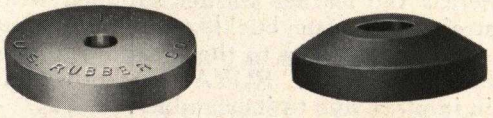
P-332—Maroon Beveled. **P-293**—Maroon Flat.
P-0332—Flexile Black Beveled.

Each assortment of 100 washers includes the following sizes and quantities:

15—¼ inch.
25—⅜-inch.
25—⅜-inch Large.
20—½-inch.
10—½-inch Large.
5—⅝-inch.

IMPROVED MAROON FAUCET WASHERS

For Either Hot or Cold Water Service



These improved faucet washers have resulted from exhaustive study and research. The improved Maroon Faucet Washer Compound has a high asbestos content which provides a strong wear-resisting body.

The tough rubber binder creates just the right degree of flexibility to assure smooth and drop-tight faucet action. A special and exacting method of mixing the compound develops a grain that characterizes the high quality and individuality of Maroon Faucet Washers.

Beveled

Style Trade Size
P-302—¼-in. Small.
P-303—¼-in.
P-304—⅜-in.
P-305—⅜-in. Large.
P-306—½-in.
P-307—½-in. Large.
P-308—⅝-in.
P-309—⅝-in. Large.
P-310—¾-in.
P-311—1-in.
P-332—Asstd. Sizes.



Flat

Style Trade Size
P-284—¼-in. Small.
P-285—¼-in.
P-286—⅜-in.
P-287—⅜-in. Large.
P-288—½-in.
P-289—½-in. Large.
P-290—⅝-in.
P-291—¾-in.
P-292—1-in.
P-293—Asstd. Sizes.

Packed in New Cylindrical Containers

Sizes from ¼-inch small to ⅝-inch, inclusive, packed 100 pieces in a container.

Sizes ⅝-inch large, ¾-inch and 1-inch are packed 25 pieces only in each container.

Also can be secured in containers having 100 washers in the following assortment:

15—¼-inch.
25—⅜-inch.
25—⅜-inch Large.
20—½-inch.
10—½-inch Large.
5—⅝-inch.

NEW FLEXILE BLACK FAUCET WASHERS

For Either Hot or Cold Water Service



These washers are tough. They have been developed primarily to conform to the irregularities so often found in used bibb seats.

Although flexile enough to meet such conditions, these Flexile Black Washers have sufficient body to avoid the hammering often caused by soft-type washers.

The qualities essential for this special service make these Flexile Black Washers excellent for use also on the regular run of faucets.

Beveled

Style Trade Size
P-0302—¼-in. Small.
P-0303—¼-in.
P-0304—⅜-in.
P-0305—⅜-in. Large.
P-0306—½-in.
P-0307—½-in. Large.



Beveled

Style Trade Size
P-0308—⅝-in.
P-0309—⅝-in. Large.
P-0310—¾-in.
P-0311—1-in.
P-0332—Assortment

Packed in New Cylindrical Containers

Sizes from ¼-inch small to ⅝-inch, inclusive, packed 100 washers in a container.

Sizes ⅝-inch large, ¾-inch and 1-inch are packed 25 washers only in each container.

Also can be secured in containers having 100 washers in the following assortment:

15—¼-inch.
25—⅜-inch.
25—⅜-inch Large.
20—½-inch.
10—½-inch Large.
5—⅝-inch.

BEVELED SOFT TYPE WASHERS

For Self Closing Faucets



Service on self-closing faucets requires washers that have more cushion than is advisable in washers used on the regular type of compression faucets.

The "U. S." ROYAL Self-Closing Faucet Washers are made of a compound that couples the proper degree of flexibility with non-deteriorating qualities that produce long life in rubber products.

Style Trade Size
P-312—¼-inch Small.
P-313—¼-inch.
P-314—⅜-inch.
P-315—⅜-inch Large.
P-316—½-inch.
P-317—½-inch Large.
P-318—⅝-inch.
P-319—⅝-inch Large.
P-320—¾-inch.
P-320A—1-inch.

Sizes from ¼-inch small to ⅝-inch, inclusive, packed 100 washers in a container.

Sizes ⅝-inch large, ¾-inch and 1-inch are packed 25 washers only in each container.

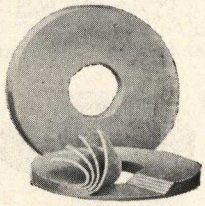
Sold Exclusively thru ~
PLUMBING SUPPLY WHOLESALERS

United States Rubber Company

1 MARKET STREET, PASSAIC, NEW JERSEY

RUBBER PLUMBING SPECIALTIES

TOP FAUCET WASHERS



White Only

They are made of a very fine, closely woven fabric of many layers, each laminated to the other by a process exclusively "U. S." This method develops a thick sheet of solid cloth fabric from which the washers are cut.

They will not crack. Having an extraordinary friction between the fabric layers, they cannot separate. They make a permanent and satisfactory repair.

5/16-Inch Holes	3/8-Inch Holes
P-690—1/4-inch.	P-388—1/4-inch.
P-691—3/8-inch.	P-389—3/8-inch.
P-692—1/2-inch.	P-390—1/2-inch.
P-693—5/8-inch.	P-391—5/8-inch.
P-694—3/4-inch.	P-392—3/4-inch.
P-695—1-inch.	P-393—1-inch.

Packed 100 in a container.

CHICAGO FAUCET WASHERS

For Chicago Faucets



P-329—This washer is made particularly to fit the Chicago faucet. In all other respects it is the same as our "U. S." ROYAL Beveled Washers in the improved Maroon Compound.

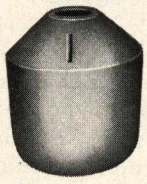
Packed 100 in a container.

"Standard" Renew Faucet Washers

For Standard Sanitary Renew Faucets

We can furnish washers of exact size to fit Standard Sanitary Faucets. Packed 100 of each size. When ordering specify size desired.

FULLER BALLS



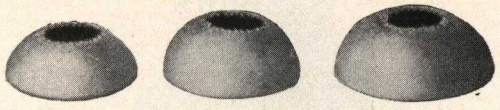
Fuller Balls must have spring or cushion enough in them to make a ready, easy seat and also have a positive up and down grain that will prevent swelling. "U. S." ROYAL Fuller Balls have earned the enviable reputation of never swelling and have just the right cushion to make a seat "drip-tight."

P-24—3/8-inch. P-26—9/16-inch. P-29—3/4-inch.
P-25—1/2-inch. P-27—5/8-inch. P-30—1-inch.
P-28—11/16-inch.

The 3/4-inch and 1-inch sizes are packed 25 in a container.

Other sizes are packed 100 in a container.

FAUCET BONNET PACKERS

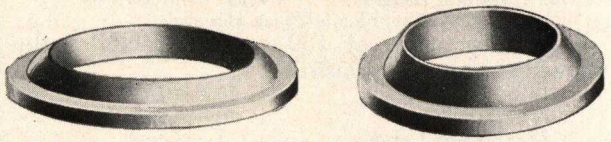


These packers are hand made, built up in alternating layers of fabric and graphite-rubber compound. All manufacturers of good quality bibbs and valves use them.

P-411—3/8-inch. P-413—1/2-inch.
P-412—3/8-inch L. P-414—1/2-inch L.
P-415—5/8x3/4-inch.

Packed 100 in a container.

MACK STRAINER GASKETS



Mack (MacBride) Gaskets, when made of "U. S." ROYAL Stock have a cushion that makes setting of basin, bath or sink strainers a quick, easy job where the outside of the fixtures are rough at the opening through which the strainers are set.

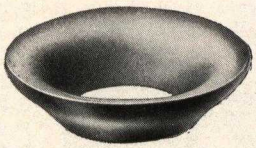
Whereas the leather washer supplied with the sink strainer will often buckle out of place when the nut is tightened owing to the roughness of the fixture bottom, a "U. S." ROYAL Gasket will always remain in place due to its shoulder.

"U. S." ROYAL Gaskets eliminate the use of putty or lead and remove all danger of cracking the enamel through drawing up too tight on the jam nut.

P-202—1 1/4-inch I. D —For Basin.
P-205—1 3/4-inch I. D.—For Sink or Bath.

Packed one dozen in a container.

WASHTRAY AND SINK PUTTY CUP GASKETS



For N. P., Brass or Lead Waste Connections

These gaskets originated in the old style galvanized iron sinks and were adopted as an improvement over the use of putty, because they eliminated the danger of leaks after the sink was put in service. With the advent of washtrays, pantry sinks and other fixtures requiring the same bell-shaped waste connection at the fixture, these gaskets have come again into popular demand.

P-211—1 1/4-inch New Style. For either N. P. or Lead Wastes.

P-212—1 1/4-inch Old Style. For N. P., Cast Iron or Lead Wastes.

Packed one dozen in a carton.

Sold Exclusively thru ~
PLUMBING SUPPLY WHOLESALERS

United States Rubber Company
1 MARKET STREET, PASSAIC, NEW JERSEY

RUBBER PLUMBING SPECIALTIES

HARD RUBBER OVERFLOW TUBE BUSHINGS



This is an item no journeyman should be without. These bushings do not corrode and will last as long as the valve.

P-19—1x1⅛-inch. **P-20**—1x1¼-inch.
P-20A—1⅛x1¼-inch.

Packed 12 in a carton.

HARD RUBBER OVERFLOW TUBES

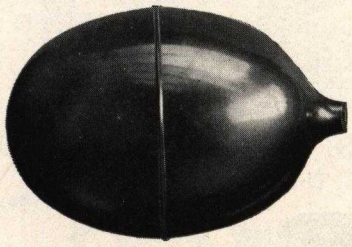


The "U. S." Hard Rubber Overflow Tube is distinctly individual, being mandrelled (or wrapped) stock. This makes it seamless and absolutely true in diameter and wall thickness. Made of a special hard rubber stock that is tough and has none of the brittleness or thin walls which are the faults of many hard rubber overflow tubes. Non-corrosive and unaffected by any water conditions.

P-21—1-inch O. D. **P-22**—1⅛-inch O. D.
P-23—1¼-inch O. D.
Length, 11 inches.

Packed 6 in a carton.

HARD RUBBER FLOATS



The "U. S." Hard Rubber Float has many individual features. With the advent of hard rubber as an alkali and acid-resisting material for use in plumbing fixtures the hard rubber float has developed a service in tanks that assures exceptionally long life.

First—It is equipped with a metal spud that will hold the rod without stripping the threads.

Second—The weakest part of a float is inside, back of the spud. In "U. S." Float Balls this weakness is eliminated by a reinforcement that gives strength and durability.

Third—The ridge on the side of the float is not there by accident. It frequently happens a float will rub against the inside wall of the tank owing to the position of the ball cock or narrowness of the tank. This rubbing naturally causes friction and reduces the lifting power of the float. In such cases the ridge, or bead, on the "U. S." Float lessens the contact of the float with the tank wall and thus minimizes any friction caused by this action.

P-16—4x6-inch over all.

Packed 12 floats in a carton.

BALL COCK WASHER ASSORTMENTS

It is a convenience to many plumbers to be able to purchase ball cock washers in assorted sizes. Two such assortments are available in "U. S." ROYAL Ball Cock Washers.



P-330—Solid Flat Washers.
P-331—Beveled Washers.

Each contains the following sizes and quantities:

25 pieces ¼-inch.
50 pieces ⅜-inch.
15 pieces ⅜-inch L.
10 pieces ½-inch.

SOLID FLAT BALL COCK WASHERS

Molded Without Holes



These washers are individually molded to assure the exactness of measurements essential to perfect sealing on all surfaces. Molded washers leave no entry for deteriorating agents.

The stock, while not of maroon color, is a special hydraulic compound. It has just the right degree of resiliency, or cushion, to eliminate vibration noise without sacrifice to wear-resisting qualities.

	Trade Size Inch	O. D. Inch	Thickness Inch
P-362	¼	9/16	3/32
P-363	Bev. Edge Success	9/16 Top, 5/8 Bottom	1/8
P-363A	3/8	5/8	3/32
P-364	3/8 Large	11/16	1/8
P-364A	½	¾	3/32
P-364B	½ Large	25/32	3/32
P-365	5/8	13/16	1/8

Made for use on ball cocks that use a brass cap to hold the washer on the piston.

Packed 100 in a container.

BEVELED BALL COCK WASHERS



The stock in this washer is the same as in the flat ball cock washer. On account of the great variation in water pressures and the inability of the average ball cock to operate satisfactorily against that variation of pressure, it has been found that a sharp beveled face on the washer cuts its way through that pressure of water to the seat and makes the closing action of the ball cock effective, prompt and exceedingly quiet.

P-376—¼-inch. **P-377**—⅜-inch.
P-378—½-inch. **P-379**—⅜-inch Large.

Packed 100 in a container.

MANSFIELD BALL COCK WASHERS

P-360

This Washer is made of a high grade resilient stock and although made to fit Mansfield Pattern Ball Cocks, it is also adaptable to other makes of ball cocks.

Packed 100 in a container.

Sold Exclusively thru ~
PLUMBING SUPPLY WHOLESALERS

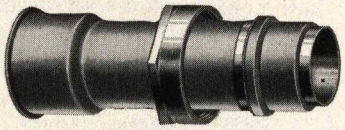
United States Rubber Company

1 MARKET STREET, PASSAIC, NEW JERSEY

RUBBER PLUMBING SPECIALTIES

STRAIGHT CONNECTIONS

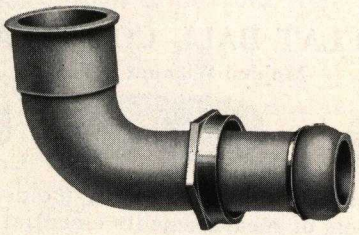
With Fittings



P-151—For 1¼-inch Brass Flush and Spud Connection.

ELBOWS

With Fittings



The "U. S." ROYAL Elbow is built to last long in service. Its use saves many a crack on the bowl when the house settles.

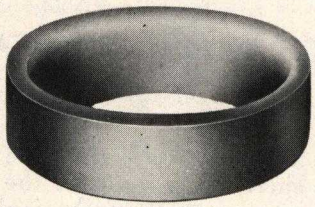
They are also equipped with the "hump" ferrule, which eliminates lamp wick or washers and makes it a secure job and easy to take off the elbow at any time desired.

P-159—1¼x1¼x5-inch for N. P. Flush Pipe.
P-178—1½x1¼x5-inch for Lead Flush Pipe.

Packed 12 in a carton.

VALVE WASHERS

For C. & D. (Coyne & Delaney) Valves



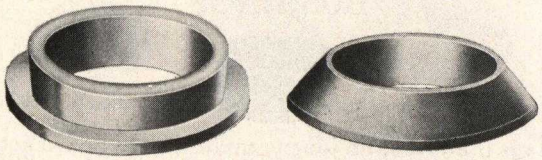
This type of washer is used on the cone pattern of syphon valves for high tanks. The trade has experienced difficulty in finding a washer that would not swell and become oversize—and yet would not be so hard that it would fail to make a soft cushion so as to shut the valve off watertight. This difficulty has been overcome in the individual compound and cure of "U. S." ROYAL Washers.

They will not harden in stock or lose their shape in service, as they are entirely impervious to any chemical or alkaline action.

P-474—1-inch.
P-475—1¼-inch.
P-476—1⅜-inch.
P-477—1½-inch.

Packed 12 in a carton.

CLOSET SPUD WASHERS



Flanged **Beveled**

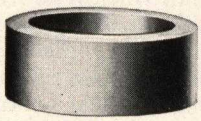
The Maroon Compound in these "U. S." ROYAL Washers is formulated to protect the horn of the closet bowl from cracking during installation.

P-416—Flanged—1¼-inch—primarily for high tanks.
P-417—Flanged—1½-inch—for flushometers.
P-418—Flanged—2-inch—for "lowdown" tanks.
P-424—Beveled—1¼-inch—for B. O. T. Spuds.
P-425—Beveled—2-inch—for B. O. T. Spuds.

Packed 12 in a carton.

CLOSET SPUD WASHERS

For Washdown Type Closets



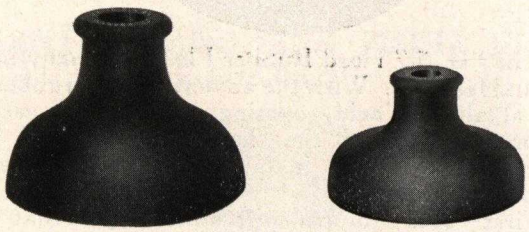
These "U. S." ROYAL Washers are made of Maroon Compound.

No.	Sizes Size Inches	Inside Diameter Inches	Outside Diameter Inches	Height Inches
P-431	1¼	1¼	1⅝	⅝
P-432	1½	1½	1⅞	11/16
P-433	2	2	2⅜	¾

Packed 12 in a carton.

"U. S." ROYAL FORCE CUPS

The Cup that "Vacuums"



The "U. S. ROYAL Cup is extremely high grade for mechanics' use. The peculiar low bell shape of this cup and wide flat surface on the bottom form a perfect vacuum.

The Maroon stock is non-blooming and is not affected by any kind of alkali, acids, etc., that are frequently used in toilets and sinks for cleansing purposes.

P-185—6 inches.
P-186—5¼ inches.
P-188—4½ inches.
P-187—4 inches.

Furnished with 24-inch Lacquered Handles.

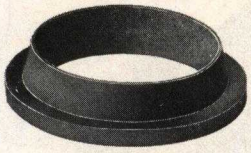
The 5¼-inch and 6-inch sizes are packed in individual boxes.

The 4½-inch and 4 inch sizes are packed one dozen to the carton.

Sold Exclusively thru ~
PLUMBING SUPPLY WHOLESALERS

United States Rubber Company
1 MARKET STREET, PASSAIC, NEW JERSEY

FLANGED JAM WASHERS



P-437
Douglas Valve
Flanged

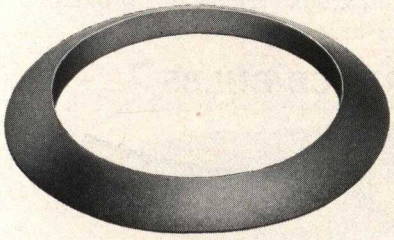


P-436
Ball Cock
Flanged

These washers are made on the same principle as a Mack washer except that the lip is extended up higher and with more taper. When set on the shank of the flush valve or of the ball cock, and the jam nut turned up in place, the flange and lip spread toward the shank, filling up the space between the brass and the tank body. They successfully supplant putty, red lead or flat washers.

Packed 12 in a carton.

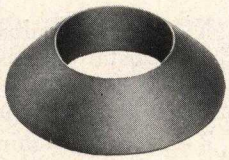
CONE TYPE JAM WASHERS



P-827
For Douglas
Flush Valves

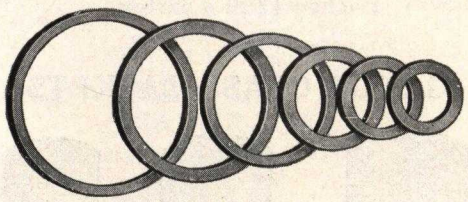
P-828
Ball Cock

Some plumbers prefer this cone type to the flanged, although the stock is the same in both.



Packed 12 in a carton.

SLIP JOINT WASHERS



Square Edge

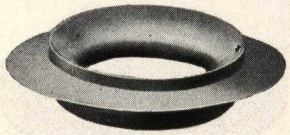
The Maroon Compound in the "U. S." ROYAL Slip Joint Washer is so formulated that no devulcanization takes place because the quality and character of the compound suffers no devulcanization through its contact with the acids, alkalies, etc. Saves time on installations.

No.	Inches	I. D. Inches	O. D. Inches	Thick Inches
P-530	3/8	7/16	19/32	1/8
P-531	1/2	1/2	21/32	3/16
P-532	3/4	11/16	27/32	5/32
P-533	1	1	1 5/32	1/8
P-534	1 1/4	1 1/4	1 13/32	1/8
P-535	1 1/2	1 1/2	1 21/32	3/16
P-536	2	1 7/8	2 1/32	3/16

Packed 100 in carton.

RUBBER PLUMBING SPECIALTIES

SYPHON VALVE WASHERS



Feather
Edge

The first syphon valves used what we now call blunt edge washers. These were unsatisfactory and progress developed the feather edge. Still trouble. The feature edge made tight until the weight of the valve caused that sensitive edge to crinkle and harden so that the valve soon had a dripping leak. It is not hard to make a good feather edge washer, but it cannot be made inexpensively. It takes time and very careful, skillful handling to cure the thickest part of that washer properly without overcuring the feather edge. Therein is the secret of a "U. S." ROYAL Washer, in Maroon Compound.

Even when the weight of the valve plunger crinkles the edge, "U. S." ROYAL Washers remain flexible and make tight.

No.	Size	No.	Size	No.	Size
P-440	1-inch.	P-443	1 3/8 inches.	P-446	1 3/4 inches.
P-441	1 1/8 inches.	P-444	1 1/2 inches.	P-447	1 7/8 inches.
P-442	1 1/4 inches.	P-445	1 5/8 inches.	P-448	2 inches.

Packed 12 in a carton.

SYPHON PACKERS

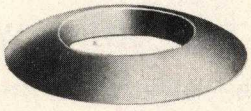


Owing to the peculiar shape and thickness of the syphon packers, the same difficulties are encountered as with the old style blunt edge valve washers. A careful study of effects regardless of cost of construction came into play in adjusting the formula and cure for the Maroon Compound used in these washers. There is no tendency in this stock to expand, swell or get out of shape.

P-484—1 1/4 inches I. D., 2 1/4 inches O. D.
P-485—1 13/16 inches I. D., 3 1/4 inches O. D.

Packed 12 in a carton.

BUDDE HALF ROUND VALVE WASHERS



For Budde
and McShane
Valves

The operation of the Budde Valve is more or less similar to the feather edge syphon valve, or C & D; and that same condition of resiliency without danger of expansion and swelling was necessary in the building of the Maroon Compound in order to attain the perfect service this washer has been giving the trade. The compound is the same as used in the syphon packers, C & D and feather edge washers.

P-498	P-499
1 9/32 inches I. D.	1 1/2 inches I. D.
2 1/4 inches O. D.	2 1/2 inches O. D.

Packed 12 in a carton.

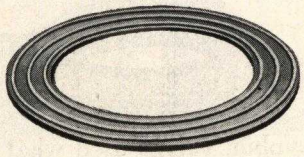
Sold Exclusively thru ~
PLUMBING SUPPLY WHOLESALERS

United States Rubber Company

I MARKET STREET, PASSAIC, NEW JERSEY

RUBBER PLUMBING SPECIALTIES

CLOSET FLANGE GASKETS



The rubber gasket is used in setting toilets where no slab is used and the bowl is bolted directly to the floor.

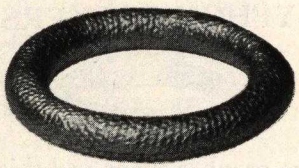
The ribbed surface of the gasket allows enough "make up" to permit bolting the bowl down rigidly to the floor without the danger of cracking the flange in the bottom.

These "U. S." ROYAL Gaskets are made of Maroon Stock which is unaffected by alkali or acids.

P-193—Rubber—4¼x7 inches.

Packed 12 in a carton.

ASBESTOS CLOSET FLANGE GASKETS



The asbestos, graphited ring, sometimes called "Renton," is made for use where brass floor flanges are used. It fits between the bottom of the bowl flange and the brass flange. The ring, being all asbestos, is soft and while it squeezes down flat when the bowl is bolted down, it retains enough spring to allow the necessary play between the brass flange and the bowl; it cannot crack and cause gas leaks and can be set very quickly.

P-196—Asbestos—3¾x5x⅝ inches.

Packed 12 in a carton.

BEVELED SLIP JOINT WASHERS

For Slip Joint Supply Connections

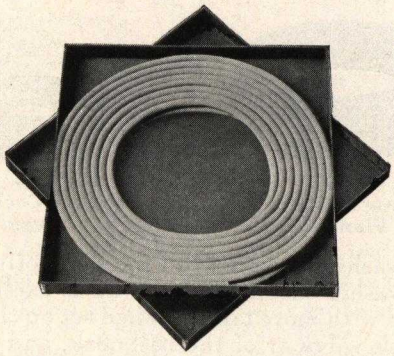


Made of the same stock as the regular slip joint washers and will make an absolutely rigid, tight connection without fear of a leak.

No.	Hole Inches	Base Inches	High Inches
P-556	⅜	19/32	13/32
P-557	½	11/16	¼
P-558	⅜	⅝	7/16

Packed 100 in a carton.

RUBBER TUBING

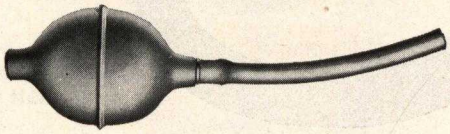


Style No. 2696—White, corrugated or smooth.
Style No. 3334—Red, smooth only.

Sizes: I. D.	Wall	Sizes: I. D.	Wall
3/16	3/64-inch.	⅜	1/16-inch.
¼	1/16-inch.	⅜	3/32-inch.
5/16	1/16-inch.	½	3/32-inch.

Packed 50 feet in a box. Boxes not broken.

FURNACE BULBS



P-55

Made of a laminated, specially built stock that gives substantial resistance to the heat of the furnace and gasoline leakage, and does not readily tear or rip if handled roughly.

The tube attaching the ball to the furnace tank is extra heavy.

The valves, both intake and check, are all metal.

Packed 12 in a carton.

GAUGE GLASS GASKETS



The "U. S." ROYAL Gauge Glass Gasket is made from "U. S." Rainbow steam packing compound and will not have the tendency to melt down and blow out in the case of extraordinary pressure at the boiler.

This gasket absolutely will not crack glass if applied properly. It is so constructed that it will allow the nut to engage a sufficient number of threads without exerting dangerous pressure on the glass.

Red	Size Inches	I. D. Inches	Thick Inches	Wall Inches
P-606	½	7/16	5/16	⅛
P-607	⅝	9/16	5/16	⅛
P-608	¾	11/16	5/16	⅛

Packed 100 in a carton.

Sold Exclusively thru ~

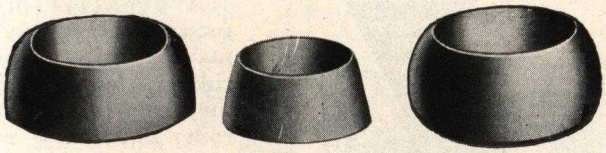
PLUMBING SUPPLY WHOLESALERS

United States Rubber Company
1 MARKET STREET, PASSAIC, NEW JERSEY

RUBBER PLUMBING SPECIALTIES

WASTE WASHERS

For Basin and Bath Connected Waste and Overflows



The Maroon stock contained in the "U. S." ROYAL Washers eliminates one of the greatest difficulties encountered with standing wastes. This great fault was in the fact that the washer would become enlarged, oversize, and drop off in the bottom of the standing tube.

Owing to the low percentage of porosity in the Maroon Compound these "U. S." ROYAL Washers will retain their resiliency and remain in place until worn out through acceptable service.

Ideal	Unique	Model
P-565—1-inch.	P-568—1-inch.	P-581—1-inch.
P-566—1¼ inches.	P-569—1¼ inches.	P-582—1¼ inches.
P-567—1½ inches.	P-570—1½ inches.	P-583—1½ inches.

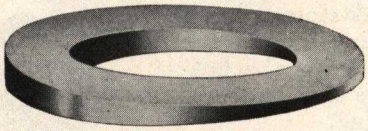
Wolff

P-588—1¼ inches. P-589—1½ inches.

Packed 12 in a carton.

C. W. & O. WASHER

For Connected Waste and Overflow



The C. W. & O. Gasket has proved a great economy to the journeyman in making a connection on the connected waste and overflow to the bathtub.

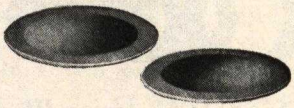
The compound is regulated in its formula and cure to give a sufficient amount of flexibility or cushion to enable the mechanic to draw up on the screw or nut thread and make a tight connection without straining the fitting.

P-599—1⅞ inches I. D. x 2 15/16 inches O. D. beveled from 7/32-inch to 15/16-inch.

Packed 12 in a carton.

LOW PRESSURE STEAM DIAPHRAGMS

For Pressure Regulators on Low Pressure Steam Boilers



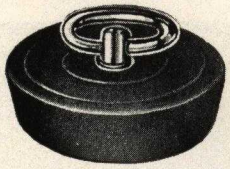
The essentials to service in this item consist of a very high grade quality of long fibre, closely woven cotton fabric that is conducive to a high degree of tensile strength. Then the lamination of equally high-grade compounded rubber stock is built over the fabric in such a manner as to create that degree of friction which will prevent the separation of the rubber from the fabric.

"U. S." ROYAL Diaphragms are built to eliminate trouble.

Style No.	Style No.
P-785—6 inches.	P-788— 9 inches.
P-786—7 inches.	P-789—10 inches.
P-787—8 inches.	P-790—12 inches.

Packed 6 in a carton.

NEW BLACK SOLID STOPPERS

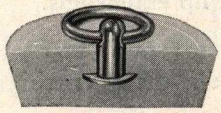


These new black stoppers are made of a high quality non-blooming compound. They will not glaze or show stain. Black Stoppers are a pleasing contrast with the porcelain and chromium basin plugs.

P-0255—¾-inch.	P-0264—1⅜ inches.
P-0256—⅞-inch.	P-0265—1½ inches.
P-0257—1-inch.	P-0269—1⅝ inches.
P-0258—1⅛ inches.	P-0266—1¾ inches.
P-0259—1¼ inches.	P-0267—2 inches.

Packed 12 in a carton.

WHITE SOLID STOPPERS



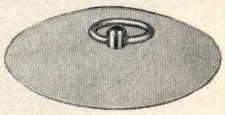
White Solid Stoppers in the "U. S." ROYAL Line contain a special compound that will resist any hot water, soap or acids coming in contact with them, giving unlimited service.

The metal stem is made with a wide flange on the bottom which makes it impossible for the stem to pull out of the stopper.

P-255—¾-inch.	P-258—1⅛ inches.	P-269—1⅝ inches.
P-256—⅞-inch.	P-259—1¼ inches.	P-266—1¾ inches.
P-257—1-inch.	P-264—1⅜ inches.	P-267—2 inches.
	P-265—1½ inches.	

Packed 12 in a carton.

SUCTION STOPPERS



The "U. S." ROYAL Suction Stoppers for bath tubs and basins are made from a very fine rubber stock. The water is held in the bowl by its weight on the edge of the stopper. The edges must necessarily be very thin and of the right kind of rubber or they curl.

These stoppers are of the improved shape since they are squared on the under side instead of round. This prevents the stopper from sliding off the waste plug if the hand should strike it.

P-272—Basin, White Size 2⅜ O. D.	P-275—Bath, White, Size 2¾ O. D.

Packed 12 in a carton.

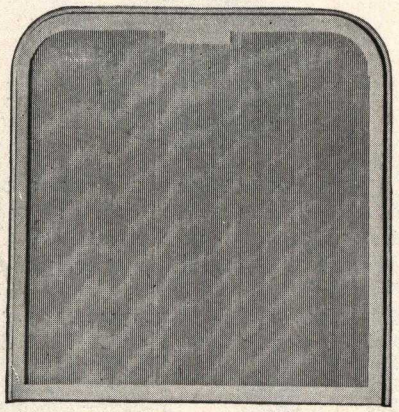
Sold Exclusively thru ~
PLUMBING SUPPLY WHOLESALERS

United States Rubber Company

1 MARKET STREET, PASSAIC, NEW JERSEY

RUBBER PLUMBING SPECIALTIES

WHITE DRAINBOARD MATS



Kitchenette

"U. S." Drainboard Mats are made in two types. The "old style" is made to fit the drainboards on old style sinks which have two-piece detachable drainboards with lip extensions.

The Kitchenette type is made to fit the drainboards on the one-piece combination sink and drainboard.

Both have a moulded bead around the edge which confines the water to a proper drainage and adds to the serviceability of the mat.

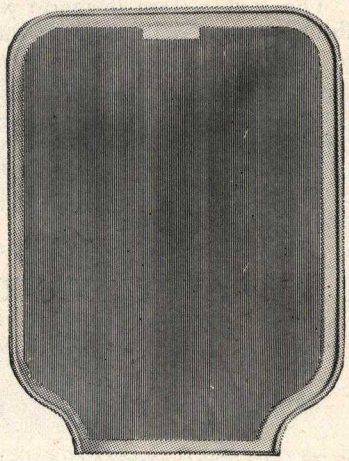
Kitchenette

P-775—14x15 ins.
P-776—16x15 ins.
P-777—18x15 ins.
P-778—14x21 ins.
P-779—16x21 ins.
P-780—18x21 ins.

Old Style

P-763—15x20 ins.
P-764—16x18 ins.
P-765—16x22 ins.
P-768—18x22 ins.
P-769—18x24 ins.

Packed in individual boxes.



Old Style

WHITE BATH MATS

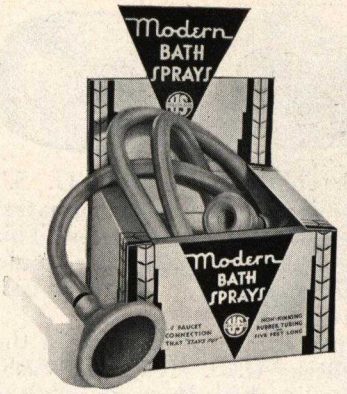
"U. S." White Bath Mats can be cleaned easily, as they have no perforations or heavy corrugations.

These are used in bath tubs to prevent slipping and are made of a fine white stock which is pliable and soft. Very comfortable to the feet and body.

P-750—12x30 inches.
P-751—12x36 inches.
P-754—15x30 inches.
P-755—15x36 inches.

Packed in individual boxes.

BATH AND SHAMPOO SPRAYS



A greatly improved bath spray, made entirely of rubber, having no metal parts to corrode, and being so constructed that it cannot injure the most delicate bowl or tub into which it happens to be thrown. Can be taken apart and cleaned, and is a useful accessory to any bathroom.

QR-9960—Same as illustrated. Furnished with 60-inch specially heavy constructed tubing to prevent kinking. Available in Red, Green, Blue and Orchid.

Q-9961—For lavatory use. Also convenient for barber shops. This style is the same as **QR-9960** except that it has only 30 inches of tubing. In Red only.

Packed in individual cartons of modernistic design.

SUCTION SINK STOPPERS

This sink stopper has a vacuum ring around the edge that grips the bottom of the sink and prevents sliding.



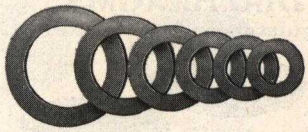
Imprinting

When ordered in quantities of 100 or more we can imprint the name, address and telephone number of the purchaser. Use No. P-279 when ordering Stoppers which are to be imprinted.

P-278—Plain. **P-279**—Imprinted.
Size—5 inches O. D.

Packed in individual boxes. One dozen to carton.

UNION WASHERS



Made from specially compounded Maroon Steam Packing

The "U. S." ROYAL Union Washers are different.

Preferable to any asbestos or fibre washer because of their greater resiliency, they make a tight joint where the facing on the union is not quite true due to imperfect pipe threading.

No.	Size of Union	I. D. Inches	O. D. Inches	Thick Inches
P-504	¼-inch Regular	17/32	51/64	3/32
P-506	⅜-inch Regular	5/8	15/16	3/32
P-508	½-inch Regular	3/4	1 3/16	3/32
P-510	¾-inch Regular	29/32	1 3/8	3/32
P-512	1 -inch Regular	1 1/8	1 5/8	3/32
P-514	1¼-inch Regular	1 1/2	2	3/32
P-516	1½-inch Regular	1 11/16	2 3/16	3/32
P-518	2 -inch Regular	2 3/16	2 13/16	3/32

Packed 100 in a carton.

Sold Exclusively thru ~
PLUMBING SUPPLY WHOLESALERS

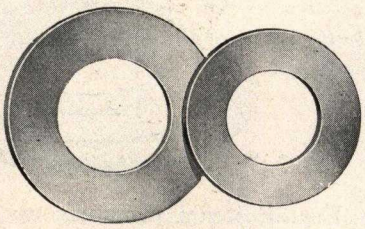
United States Rubber Company

1 MARKET STREET, PASSAIC, NEW JERSEY

RUBBER PLUMBING SPECIALTIES

FLANGE UNION GASKETS

Full Face, Ring and Companion Flange Sizes Cut from Wizard Superheat Sheet, Also from Rainbow Sheet if desired



Asbestos gaskets are preferred by many fitters even on low pressure, and as our Wizard Gaskets are manufactured from "U. S." Wizard Superheat Packing they will give "U. S." Super Packing service.

Be sure to read these recommendations before ordering.

Full face style is made to fit over entire surface of flange. The gaskets, in any size shown below, are furnished without bolt holes unless order is accompanied by a templet showing exact size and spacing of bolt holes desired.

Standard, or regular, ring style gaskets are made to fit inside the bolt holes and for companion flanges only.

Special Ring style gaskets are made to fit inside the bolt holes of regular flange unions.

Pipe Size Inches	Full Face Fits Over Entire Surface of Flange Inches	Standard Ring For Companion Flanges Only Inches	Special Ring For Flange Unions Inches
2	2 1/8 x 6	2 1/8 x 4	2 1/8 x 3 3/8
2 1/2	2 5/8 x 7	2 5/8 x 4 3/4	2 5/8 x 3 7/8
3	3 1/8 x 7 1/2	3 1/8 x 5 1/4	3 1/8 x 4 3/8
3 1/2	3 5/8 x 8 1/2	3 5/8 x 6 1/4	3 5/8 x 5 1/8
4	4 1/8 x 9	4 1/8 x 6 3/4	4 1/8 x 5 5/8
4 1/2	4 5/8 x 9 1/4	4 5/8 x 7	4 5/8 x 6 1/4
5	5 1/8 x 10	5 1/8 x 7 3/4	5 1/8 x 7 1/8
6	6 1/8 x 11	6 1/8 x 8 3/4	6 1/8 x 8 1/8
7	7 1/8 x 12 1/2	7 1/8 x 10	7 1/8 x 9 1/8
8	8 1/8 x 13 1/2	8 1/8 x 11	8 1/8 x 10 1/2
9	9 1/8 x 15	9 1/8 x 12 1/2	9 1/8 x 11 5/8
10	10 1/8 x 16	10 1/8 x 13 1/4	10 1/8 x 12 7/8
12	12 1/8 x 19	12 1/8 x 16	12 1/8 x 15 1/4

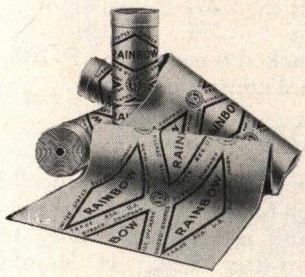
Furnished 1/16-inch, 3/32-inch, 1/8-inch thicknesses.

GENUINE "U. S." RAINBOW

Steam Packing

Genuine RAINBOW Packing has earned the national reputation of being not only the original, but the best red sheet steam packing on the market today.

RAINBOW is fully tested to stand in service, without melting down and blowing out, a pressure of 150 pounds of steam or a temperature of 367 degrees Fahrenheit.



We particularly caution the plumbing and heating fraternity at large against buying any red sheet rubber and accepting it as RAINBOW, unless it bears the United States Rubber Company trade-mark.

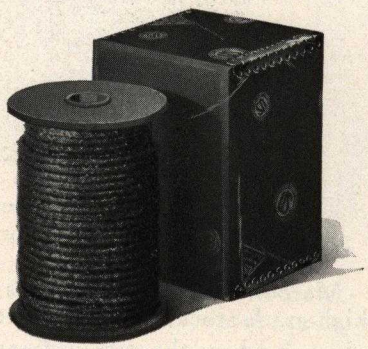
Sold in 1/16, 3/32 and 1/8-Inch Thicknesses
Approximate Weight per Square Yard

1/16-inch	3/32-inch	1/8-inch
6 3/8 pounds	9 1/2 pounds	12 3/4 pounds

Shipped in 100-pound rolls, 36 inches wide.

VALVE STEM GRAPHITE PACKING

For Steam and Radiator Valves



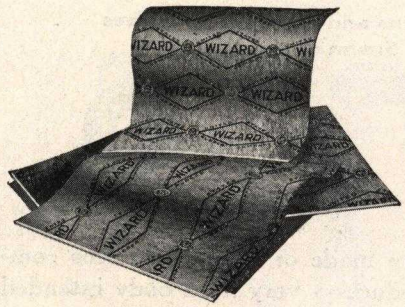
The "U. S." ROYAL Valve Stem Packing contains absolutely no jute or cotton. The rock asbestos used is of high grade. There are different grades of this type of packing on the market and because it is graphited it is rather difficult to determine its genuineness unless the test of fire is applied. One hundred per cent asbestos packing will not burn when brought in contact with a flame.

No. P-781—Braided, 1/8 and 1/4-inch sizes.
No. P-782—Twisted, 1/8 and 1/4-inch sizes.

Furnished in twisted or braided form. Made up on either 1/4-pound or 1-pound spools. Furnished only in 1-pound lots in attractive packages.

"U. S." WIZARD SUPERHEAT PACKING

An Asbestos Product for High Pressure Dry Steam Service



Wizard Superheat Packing is constructed to resist heat to the point of what is called dry steam and where there is a tendency to burn out inflammable material. For this reason Wizard Superheat Packing contains an exceptionally high percentage of the very finest grade of rock asbestos. It will not burn out, can not melt down and blow out under any degree of heat or temperature found in high pressure and dry steam operations.

This packing can be ordered plain or graphited. A slight extra charge being made for the graphiting process.

Furnished in sheets 60 inches square only.

Weights per Sheet

1/16-inch thick 15 pounds. 3/32-inch thick 22 1/2 pounds.
1/8-inch thick 30 1/4 pounds.

Sold Exclusively thru ~
PLUMBING SUPPLY WHOLESALERS

United States Rubber Company

1 MARKET STREET, PASSAIC, NEW JERSEY

RUBBER PLUMBING SPECIALTIES

MAROON STEAM PACKING



For Low Pressure Steam, Hot and Cold Water Service

Maroon Steam Packing is compounded of a high-grade stock, being modified to fit the character of work where the extraordinary qualities of Rainbow Packing are not required. By a preference of the majority of the fitters and plumbers throughout the country we have prepared special calenders for surfacing this stock with a milled finish. The compound will resist a working steam pressure up to 125 pounds and maximum of 353 degrees Fahrenheit.

Milled finish. Furnished 36 inches wide only.

No.	Size	No.	Size	No.	Size
P-650	1/16-inch.	**P-651**	3/32-inch.	**P-652**	1/8-inch.

Weights per Square Yard

1/16-inch thick	3/32-inch thick	1/8-inch thick
6 3/8 pounds	9 1/2 pounds	12 3/4 pounds

Shipped in 100-pound rolls.

USCO VALVE DISCS

For Jenkins and Globe Steam Valves for Steam or Hot Water



Oval Hole



Round Hole

These discs are made of a rock asbestos compound which produces a very hard body intended for high steam pressure work where a great deal of heat resistance is required. This type is termed the "Usco" Valve Disc, and is recommended as superior to graphite, used wherever high pressure and dry steam is in service.

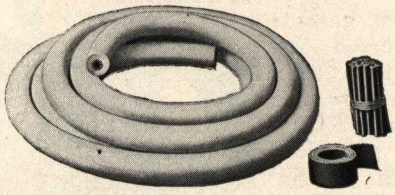
They are furnished with round holes up to 3/4-inch and oval holes 3/4-inch and larger.

Sizes	Sizes
1/4-in. round hole only.	1 -in. oval only.
3/8-in. round hole only.	1 1/4-in. oval only.
1/2-in. round hole only.	1 1/2-in. oval only.
3/4-in. round or oval.	2 -in. oval only.
	2 1/2-in. oval only.

Furnished in multiples of 10.

"U. S." ECLIPSE TUBULAR GASKETS

For Manhole and Handhole Plates

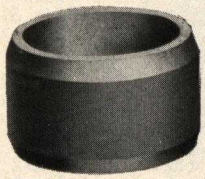


For all steam pressures up to 150 pounds, hot and cold water and air. Can be used for manhole and handhole plates, flange gaskets and on large exhaust heater doors, large steam drum heads or any large gasket where the temperature is less than 370 degrees.

Made of "U. S." Rainbow Compound, in tubular form, can be cut to desired length and connected with a soft metal tube, the butted ends being wrapped with a special tape, forming a continuous ring or gasket. Tape and tubes furnished with each box.

1/4-inch and 3/8-inch for pipe unions.
1/2-inch for handhole plates.
5/8-inch and 3/4-inch for manhole plates.
7/8-inch and 1-inch for extra large manhole plates.
Style No. 803—Form, Coil.
Style No. 804—Form, Reel.

PIPE TESTING PLUG RINGS



"U. S." ROYAL Rings are built so they won't crack, they will come back to shape after they are taken out of the pipe. This is because each "U. S." ROYAL Ring is laminated by wrapping layers around a mandrel to build up the required thickness; it is hand finished with beveled ends to facilitate entering the pipe.

Hand Made

	Trade Size Inches	I. D. Inches	O. D. Inches	Face Inches
P-227	2	1 1/2	1 31/32	1 1/8
P-228	3	2 1/8	2 3/4	1 25/32
P-229	4	2 27/32	3 17/32	1 15/16
P-230	5	3 3/4	4 1/2	1 29/32
P-231	6	4 3/4	5 3/4	1 15/16

P-227, P-228, P-229 Packed 6 each size. **P-230, P-231** Packed in individual containers.

SOFT SEAT DISC VALVES



This item is manufactured of a special stock of very high tensile strength, exceedingly resilient and is adaptable only to hot and cold water use. It should never be used on steam work.

P-675—1/2-inch. **P-676**—3/4-inch. **P-677**—1-inch. **P-678**—1 1/4 inches. **P-710**—1 1/2 inches.

Furnished n multiples of 10.

Sold Exclusively thru ~

PLUMBING SUPPLY WHOLESALERS

United States Rubber Company
1 MARKET STREET, PASSAIC, NEW JERSEY

BUMPERS

These are made of particularly resilient stock which is essential in preserving the life of a closet bowl. Much money has been spent replacing bowls broken by a hard bumper on a seat that has been slammed down heavily.

ASSORTMENTS

Realizing that the standard package of any one style or size of Bumpers sometimes contains more that the plumber will use over a normal period, we have assembled two handy assortments.

The two following assortments are identical except for the color of stock used in the various items:

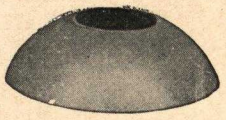
P-70W (White)

30 pieces. **P-67** — 5/8-inch White Tack Bumpers.
30 pieces. **P-68** — 3/4-inch White Tack Bumpers.
20 pieces. **P-622**—1 1/2-inch White Half-Round Bar Bumpers.
20 pieces. **P-623**—2 1/2-inch White Half-Round Bar Bumpers.

P-70M (Maroon)

30 pieces. **P-62** — 5/8-inch Maroon Tack Bumpers.
30 pieces. **P-63** — 3/4-inch Maroon Tack Bumpers.
20 pieces. **P-112**—1 1/2-inchMaroon Half-Round Bar Bumpers.
20 pieces. **P-113**—2 1/2-inch Maroon Half-Round Bar Bumpers.

CLOSET SEAT BOLT BUMPERS



P-106—1 1/16-inch base, 5/16-inch high.
P-107—1 3/16-inch base, 3/8-inch high.
P-108—1 3/16-inch base, 1/2-inch high.
Each size packed 100 in a box.

BAR PATTERN SEAT BUMPERS



With metal washers inserted. All styles, white or maroon.

	Inches Long	Inches High
P-113—Maroon,	2 1/2	7/16
P-623—White,	2 1/2	7/16
P-115—Maroon,	1 11/16	19/32
P-625—White,	1 11/16	19/32
P-112—Maroon,	1 1/2	13/32
P-622—White,	1 1/2	13/32
P-117—Maroon,	2 1/4	3/8
P-627—White,	2 1/4	3/8
P-116—Maroon,	1 5/8	7/16
P-626—White,	1 5/8	7/16

Each size packed 100 in a box.

RUBBER PLUMBING SPECIALTIES

TACK BUMPERS



P-62—5/8-inch, Maroon.
P-63—3/4-inch, Maroon.
P-67—5/8-inch, White.
P-68—3/4-inch, White.
Each size packed 100 in a box.

SLOTTED SCREW BUMPERS





These improved screw bumpers are made with a flathead screw and a washer. This holds the head on securely.

Size	Maroon	White
3/4-inch	**P-128**	**P-123**
7/8-inch	**P-129**	**P-124**
1-inch	**P-130**	**P-125**

Each size packed 100 in a box.

RECESS OR PLAIN SEAT BUMPERS



P-78
11/16-inch base
5/16-inch high

P-80
5/8-inch base
9/32-inch high

P-86
3/4-inch base
15/32-inch high

P-90
31/32-inch base
1/2-inch high

P-92
1-inch base
5/8-inch high

P-95
3/4-inch base
1/2-inch high

P-89
15/16-inch base.
3/8-inch high.

Each size packed 100 in a box.

HOSE WASHERS

This "U. S." ROYAL item is made of Maroon compound particularly adapted to the purpose for which it is built and will make perfectly tight connections in hose couplings.

P-700—3/4-inch.
Packed 100 in a box.

Sold Exclusively thru ~
PLUMBING SUPPLY WHOLESALERS



In "U. S." ROYAL Rubber Plumbing Specialties we have made available to the Master Plumber and Heating Contractor through the Plumbing Supply Wholesaler a complete and exclusive line of rubber products of the highest quality.

Production of "U. S." ROYAL Rubber Plumbing Specialties is scientifically handled by expert craftsmen from the time the liquid rubber—known as "Latex"—is taken from the Hevea trees on our own plantations until the finished products are released from our factory—the most modern of rubber manufacturing institutions.

"U. S." ROYAL Rubber Plumbing Specialties are offered exclusively to:

PLUMBING SUPPLY WHOLESALERS for distribution only to Master Plumbers and Heating Contractors.

MANUFACTURERS OF PLUMBING AND HEATING EQUIPMENT who realize the importance of installing the highest quality of rubber specialties in the equipment they manufacture.

United States Rubber Company

World's Largest Producer of Rubber

THE WILLIAMS-BOWMAN RUBBER CO. CICERO, ILL.

1941-49 South 54th Avenue

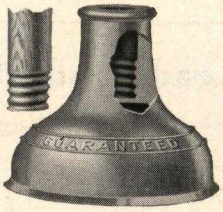
Manufacturers of

WILBOW Rubber Specialties



PATENTED. AUG. 12, 1913

Plumbers' Force Cups



Heavy Low Pattern
Extra Wide Flange.
Red Rubber.
No. 45—4½-inch Diameter.
No. 55—5½-inch Diameter.

Threaded Feature
½ dozen in a box.

High Neck Pattern
Extra Wide Flange.
Maroon Color.
No. 9—4½-inch Diameter.
No. 11—5½-inch Diameter.

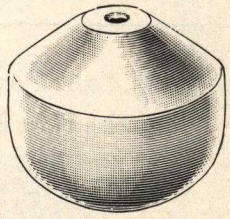
Threaded Feature
Fifty in a carton.

Furnished with Threaded, Red Enameled Handles.



One Piece Tank Ball Semi-Cone Shape

Made of Pure Gum or Black Rubber.
Five Sizes—2, 2¼, 2½, 2¾ and 3-inch.
One dozen in a box or in individual cartons.



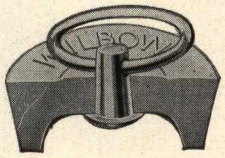
One Piece Tank Ball Cone Shape

White or Red Rubber.
Five Sizes—2, 2¼, 2½, 2¾ and 3-inch.
One dozen in a box.

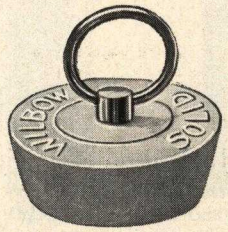


Fuller Balls

Made in all sizes and six grades for hot or cold water. No. 2—Black, for cold water. No. 4—Graphite and Asbestos, for hot water. No. 6—Red, combination hot and cold. No. 7—White Short Asbestos, hot and cold water. No. 9—Blue Long Asbestos, hot and cold water. No. 12—"Tuff Wilbow"—Carbon Black Stock, hot and cold water. One pound in a box.



Bath and Basin Plug—Regular



Bath and Basin Plug—Solid

Bath and Basin Plugs

White Rubber. Regular and Solid Pattern.
All Sizes. One dozen in a box.
Also Extra Heavy Hotel Stoppers.



Beveled Bibb Washer

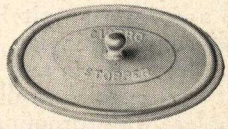
Beveled Bibb Washers

Hard Black—Graphite and Asbestos— with Polished Finish, for hot water. Blue—Long Fibre Asbestos—for hot and cold water. "Tuff Wilbow"—Carbon Black Stock—for hot and cold water. All Sizes. 100 in a box.



Suction Stopper

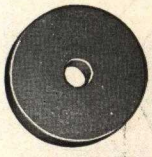
Two Sizes—Basin or Bath.
White Rubber, compounded to withstand hot and cold water.



Sink Stopper

Five-inch Diameter.
White Rubber. Fits over drain screen, converting sink into wash tub.

All stoppers packed one dozen in a box.



Flat Bibb Washer

Flat Bibb Washers

Red Asbestos—for hot and cold water. Hard Black—Graphite and Asbestos—with Polished Finish—for hot water. "Tuff Wilbow"—Carbon Black Stock—for hot and cold water. All Sizes. 100 in a box.

Union Washers

High grade Red Rubber. One pound in a box.

Slip Joint Washers

High grade Red Rubber. Square Cut. One pound in a box.

Rubber Bumpers



No. 45



No. 10



No. 30

Packed 100 in a box.



No. 75

Bar Bumpers

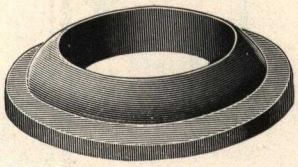
Attach with Screw or Nail

Black or White Rubber.
Complete with heavy nickel-plated brass escutcheon and pins.
Packed 25 in a box.



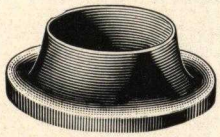
Fuller Stems—Adjustable

Complete with Fuller Ball and Cap.
Sizes—½ and ⅝-inch.
Packed 25 in a box.



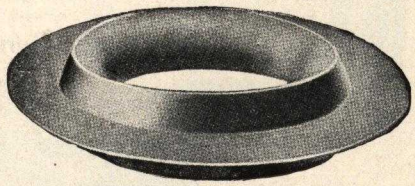
Mack Gaskets

Basin—1¼-inch I. D. 2-inch O. D.
Bath—1⅝-inch I. D. 2⅜-inch O. D.
Packed 50 in a box.



Sink Gaskets

Regular—1½-inch I. D. 2¾-inch O. D. ¾-inch high.
New Style—1⅜-inch I. D. 2½-inch O. D. ¾-inch high.
Packed 50 in a box.



Syphon Washers

White or Black Rubber.
All Sizes. One dozen in a box.

Special Molded Goods and Cut Washers

THE EAGLE-PICHER LEAD COMPANY — CINCINNATI, OHIO

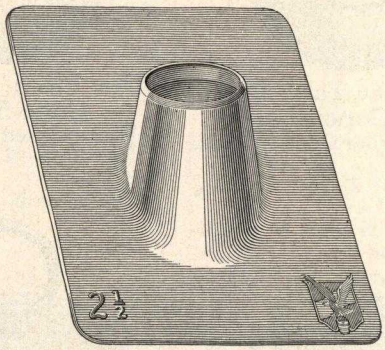
General Offices—1030 Broadway

Branches

Chicago, Illinois — Joplin, Missouri

Eagle-Picher Lead Products

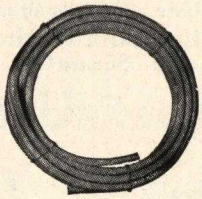
The New Eagle SUPER Flange



1. All lead—one piece. Simple and very strong construction. Made of 100% pure soft Southwestern Missouri pig lead, giving maximum strength and beautiful appearance.
2. Made under 100-pound per square inch pressure, insuring perfect solidity of the metal—no blowholes or laminations possible.
3. Beveled edges, rounded corners—boot **rounded** into apron—easy pitch adjustment to all roofs. Easy to slip under shingles.
4. Very pliable and ductile. Feather edge at top of boot and special caulking ring mean easy caulking—complete waterproofing.
5. Shipped in secure, wirebound packages—flanges nested 25 or 50 in the package.

Stock sizes—1¼, 1½, 2, 2½, 3, 4, 5, 6 inches.
Special sizes on order. Write for free folder.

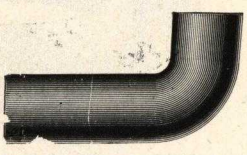
Eagle Lead Pipe



Lead Pipe

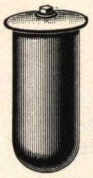
Sizes 2, 3, 4, 5 and 6-inch pipe furnished in 10-foot lengths, boxed, unless otherwise specified. All sizes up to 2 inches on reels containing 400 to 800 pounds or in 100 and 200-pound coils.

Eagle Lead Bends



Furnished with both long and short inlets and outlets—all sizes and weights.

Eagle Lead Drum Traps



Spun from drawn lead with triple thickness of metal at bottom of trap. Furnished in both flat and round bottom. Sizes: 4 x 8 to 4 x 14. Standard, medium, and extra-heavy weights.

Eagle No. 2 Star Solder



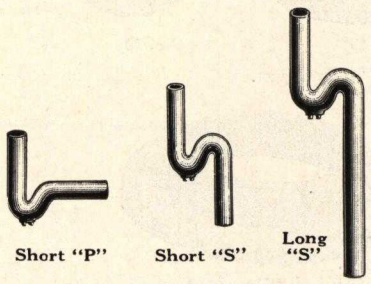
50% tin—50% lead, fusing point 372 degrees F. For all grades of high-class soldering, and noted for its free flowing qualities. The surface at all times retains its original bright lustre.

Other Eagle Solders of All Grades



For all purposes, Wiping, Pot Lead, Ingot Lead, 1½ pounds bar solder, Babbit Metal and Wire or Tape Solder.

Eagle P. & S. Traps



P, S, Running and Bag Traps with or without vents. Weights and sizes: Standard—1¼ to 4 inches. Medium—1¼ to 2 inches. Extra Heavy—1¼ to 4 inches. Detailed lists on request.

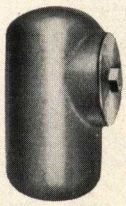
MARKS LISSBERGER & SON, INC. LONG ISLAND CITY, N. Y.

23-01 Borden Avenue

Branch Office—Detroit, Mich., 6-233 General Motors Bldg.



No. 1
New England Styles
Flush Cover



No. 2
Side Screw

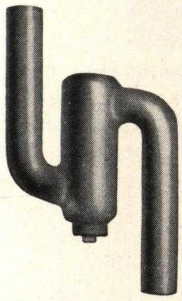


No. 3
Nickel Plated
Flange Cover

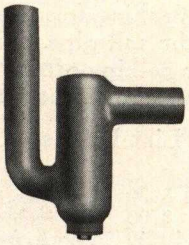
M. L. & S., Inc.—Lead Drum Traps

Sizes—Light Weight	Sizes—Medium Weight	Sizes—Heavy Weight
4x8 inches—5 lbs.	4x8 inches—6 lbs.	4x8 inches—8 lbs.
4x9 inches—5 lbs.	4x9 inches—6 lbs.	4x9 inches—8 lbs.
5x9 inches—8 lbs.	5x9 inches—9 lbs.	5x9 inches—10 lbs.

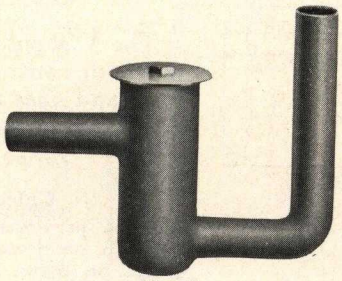
United States Standard Price List.



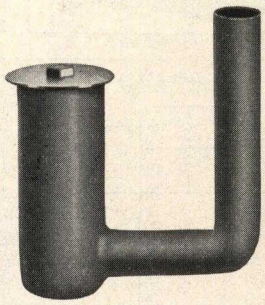
No. 7



No. 9



No. 30



No. 31

M. L. & S., Inc.—Bath Traps

	Std.	Ex. Hy.
Full S—1¼ inches	$1.25	$2.00
Full S—1½ inches	1.25	2.00
Full S—2 inches	1.75	2.75

	Std.	Ex. Hy.
Half S—1¼ inches	$1.25	$2.00
Half S—1½ inches	1.25	2.00
Half S—2 inches	1.75	2.75

	Std.	Ex. Hy.
1¼ inches—No. 7—With long outlet to floor	$2.00	$3.00
1½ inches—No. 7—With long outlet to floor	2.00	3.00
2 inches—No. 7—With long outlet to floor	2.50	3.50

1¼ inches—Standard	$2.25
1½ inches—Standard	2.25
2 inches—Standard	2.75
1¼ inches—Extra Heavy	2.75
1½ inches—Extra Heavy	2.75
2 inches—Extra Heavy	3.50

Nickel Plated Flanged Covers.



Combination Lead and Iron Bends

M. L. & S., Inc.—Combination Lead and Iron Bends

Length of outlet end, in inches	Standard Weight 12	13	14	15	16	17	18	19	20
4-inch Short Inlet (5½-inch Inlet)	$2.20	$2.30	$2.40	$2.50	$2.60	$2.70	$2.80	$2.90	$3.00
4-inch Long Inlet (9¾-inch Inlet)	2.65	2.75	2.85	2.94	3.04	3.14	3.23	3.33	3.42

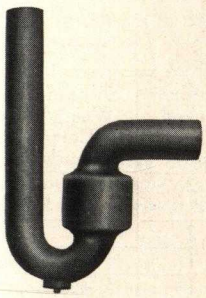
Length of outlet end, in inches	Extra Heavy Weight 12	13	14	15	16	17	18	19	20
4-inch Short Inlet (5½-inch Inlet)	$2.59	$2.71	$2.83	$2.95	$3.07	$3.19	$3.31	$3.43	$3.54
4-inch Long Inlet (9¾-inch Inlet)	3.12	3.24	3.36	3.48	3.60	3.72	3.84	3.96	4.08

M. L. & S., Inc.—Combination Lead and Iron Ferrules

Standard Weight	Lengths—In Inches 4	4½	5	6	8	10	12	14	16	18	20	24	30	36
1¼ in. for 2 in. C. I. P.	.....	$0.28	$0.36	$0.43	$0.51	$0.60	$0.67	.....	.....	.....	.....	.....	.....	.....
1½ in. for 2 in. C. I. P.	.....	.28	.36	.43	.51	.60	.67	$0.80	$0.90	$1.00	$1.10	$1.30	.....	.....
2 in. for 2 in. C. I. P.	$0.28	.....	.41	.46	.57	.67	.76	.80	.86	.92	1.00	1.15	$1.40	$1.65
3 in. for 3 in. C. I. P.	.42	.....	.60	.67	.82	.98	1.10	1.15	1.22	1.30	1.40	1.60	2.00	2.30
4 in. for 4 in. C. I. P.	.50	.....	.72	.85	1.02	1.25	1.40	1.60	1.73	1.85	2.10	2.30	2.75	3.25
Extra Heavy Weight														
1½ in. for 2 in. C. I. P.	.....	.38	.44	.52	.61	.72	.80	1.15	1.30	1.45	1.60	1.90	.....	.....
2 in. for 2 in. C. I. P.	.42	.....	.49	.54	.67	.81	.93	1.10	1.23	1.36	1.49	1.75	2.20	2.60
3 in. for 3 in. C. I. P.	.55	.....	.75	.84	1.00	1.18	1.35	1.46	1.63	1.80	1.97	2.33	2.90	3.40
4 in. for 4 in. C. I. P.	.70	.....	.84	.94	1.23	1.45	1.67	2.00	2.21	2.45	2.70	3.16	3.76	4.36



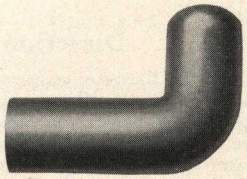
Combination Lead and Iron Ferrules



Non-Syphon Lead Trap

M. L. & S., Inc.—Non-Syphon Lead Traps

Weight per running foot, pounds	Standard 1½	2¼	3¼	Medium 2	3	4	Extra Heavy 2½	3½	4½
Size.....Inches	1¼	1½	2	1¼	1½	2	1¼	1½	2
Full S	$1.95	$2.25	$3.10	$2.10	$2.40	$3.35	$2.25	$2.60	$3.55
¾ S	1.90	2.20	3.00	2.10	2.30	3.25	2.20	2.50	3.45
½ S or P	1.85	2.10	2.90	2.00	2.20	3.15	2.15	2.45	3.30
Running	1.85	2.10	2.90	2.00	2.20	3.15	2.15	2.45	3.30
Full S Long Outlet No. 1	2.30	2.70	3.70	2.55	3.00	4.10	2.80	3.30	4.40
Full S Long Inlet No. 2	2.30	2.70	3.70	2.55	3.00	4.10	2.80	3.30	4.40
¾ S Long Inlet No. 11	2.20	2.55	3.50	2.40	2.80	3.80	2.65	3.10	4.05
¾ S Long Outlet No. 12	2.20	2.55	3.50	2.40	2.80	3.80	2.65	3.10	4.05
½ S or P Long Inlet No. 3	2.10	2.40	3.25	2.30	2.60	3.55	2.50	2.90	3.75
½ S or P Long Outlet No. 4	2.10	2.40	3.25	2.30	2.60	3.55	2.50	2.90	3.75



Spun End Lead Bends

A charge of 25 cents net is made for spinning.

BUTLER MANUFACTURING CO.

13th & Eastern, Kansas City, Mo. — 900 6th Ave., S. E., Minneapolis, Minn.

Overton Adjustable Flashings Fit Any Angle

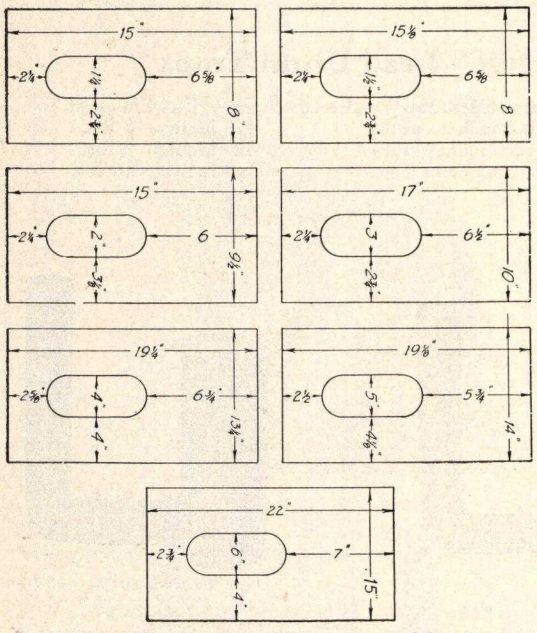
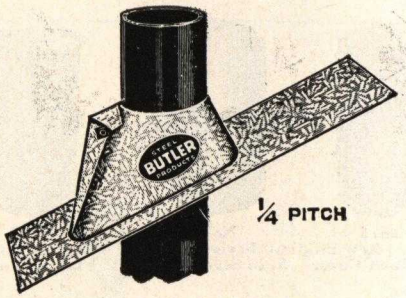


Diagram Showing Overall Dimensions of Overton Flashings

Packed in dozen lots.

Size of box, 14x17¾x20 inches.



Overton Adjustable Flashings

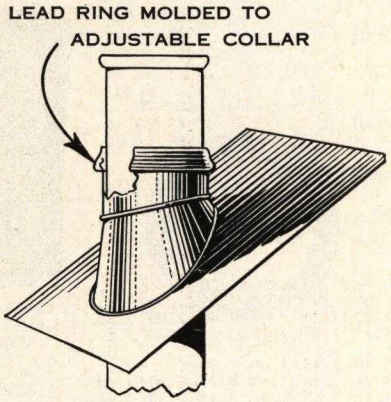
The V shoulder of the flashing forms a metal spring that expands or contracts with the soil pipe. This assures an air-tight joint and does not require calking often. Overton Flashings are adaptable for use on standard and extra heavy soil pipe.

List Prices

Galvanized		Copper	
1¼-inch, per dozen	$ 8.00	1¼-inch, per dozen	$15.00
1½-inch, per dozen	8.00	1½-inch, per dozen	15.00
2-inch, per dozen	10.00	2-inch, per dozen	17.00
3-inch, per dozen	11.00	3-inch, per dozen	19.00
4-inch, per dozen	12.00	4-inch, per dozen	20.00
5-inch, per dozen	17.00	5-inch, per dozen	27.00
6-inch, per dozen	30.00	6-inch, per dozen	40.00

H. E. HESSLER COMPANY — SYRACUSE, N. Y.

Main Office and Factory—508-520 North Salina Street



No. 1—¼ to ½ Pitch
No. 2—Flat to ¼ Pitch

Directions for Using

Slip the flange over the vent pipe and bring down to the roof. Adjust the flange until the base lies perfectly flat on the roof. Then fasten securely. After this has been done use hammer to beat lead onto vent pipe, and you have a water-tight and lasting joint. Care should be taken in forming lead around pipe—always strike as near the base of lip as possible but never at extreme top.

Discount quoted upon application.
Subject to change without notice.
Upwards of 2,000,000 in use.

The HESSLER Adjustable Roof Flange

Adjusts to Any Pitch of Roof

The Hessler Adjustable Roof Flange can be adjusted to fit any pitch of roof. It can be placed snugly around vent pipes where they come through the roof, insuring a water-tight joint that will last. It is economical, a saver of labor, and is easy to place. It lasts an indefinite period.

All sizes 1¼-inch, 1½-inch, up to 6-inch will flash either extra heavy, standard, or wrought iron pipe. The plumber can vary it to suit the different pitches of roofs. Comes in either copper or galvanized iron. It has a wide lead caulking ring cast to the adjustable collar. The lead can be beat to the pipe and makes a solid tight job. Requires the use of a hammer only, no hot lead, fire, oakum or putty being necessary. Can be put on in a few minutes.

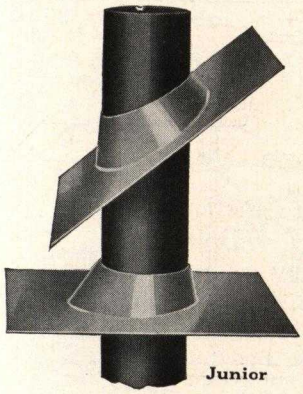
PRICE LIST

Size Inches	Kind	List per Dozen Copper or Galvanized	Number Packed in Carton Dozen	Shipping Weight per Carton Pounds
1½-in. will flash 1¼-in. also	Galv. or Copper	$ 30.00	2	35
2	Galv. or Copper	34.00	2	45
3	Galv. or Copper	38.00	1	35
4	Galv. or Copper	40.00	1	40
5	Galv. or Copper	57.00	1	55
6	Galv. or Copper	100.00	1	95

THE L. R. OATEY CO.

CLEVELAND, OHIO

5500 Walworth Avenue



Junior

Oatey "4-in-1" Roof Flashings

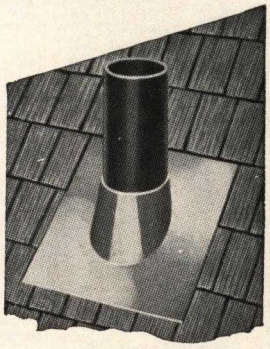
1—Designed to fit extra heavy soil pipe without any fitting or trimmings of collar.

2—Fit all standard pipe, the angle of collar allowing for proper caulking without danger of buckling or breaking.

3—Can be installed on any roof up to 45 degree angles.

4—Can be installed on flat roofs with same ease as on pitched roof.

Oatey Flashings are made by manufacturers who understand the problems of the plumbing and roofing trades. Every order is handled with the greatest care for accuracy and speed in delivery. We welcome inquiries or questions concerning the proper type flashing for any installation or according to any building code.



New Senior

The New Senior "4-in-1" Roof Flashing is the most up-to-date flashing on the market made of lead, all cast in one piece . . . extremely durable . . . readily expedites jobs.

Cast from PURE lead only, strong base, heavy sleeve . . . makes a very rigid flashing.

Oatey reliability and uniformity of workmanship guaranteed with every flashing.

Galvanized and Copper Roof Flashings

Oatey "4-in-1" Roof Flashings are also furnished in either galvanized or copper, the same reliable products that have always met with the approval of the trade.

List Prices of "Oatey" Flashings per Dozen

	Junior Lead	Senior Lead	Copper	Galv.
6"	$52.00	$52.00	$40.00	$30.00
5"	36.00	36.00	27.00	17.00
4"	24.00	24.00	20.00	12.00
3"	20.50	20.50	19.00	11.50
2½"	20.50	20.50	19.00	11.00
2"	18.00	18.00	17.00	10.00
1½"	16.00	16.00	15.00	8.00
1¼"	16.00	16.00	15.00	8.00

All Sizes

1¼, 1½, 2, 2½, 3, 4, 5 and 6-inch.

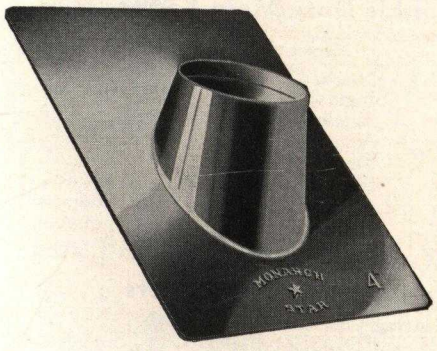
Packed

3, 4, 5 and 6-inch Junior and Senior all casts 1 dozen to a case. All other sizes and types 2 dozen to a case.

THE SELFRIDGE-NORTON MFG. CO.

CLEVELAND, OHIO

General Offices and Factory—5808 Euclid Avenue

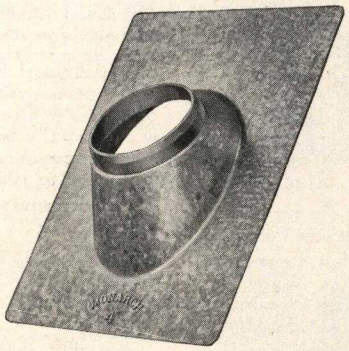


MONARCH STORM PROOF ROOF FLANGES

Monarch Roof Flashings

One Piece
Cast Lead
No Joints
Leak Proof
Long Life

One Piece
Seamless
Copper



Star Brand

The Monarch Star is cast in one piece from virgin lead making a strong and ductile flange equal in weight to five-pound sheet lead. The rounded corners, caulking ring and ample shingle space make them easy to apply.

Base of 4-inch size is 12x14½ inches. Other sizes in proportion.

They come packed one dozen to a strong, plainly marked wooden box insuring delivery in **good condition, easy handling** and **convenient resale package.**

Storm Proof Brand

MONARCH STORM-PROOF flanges are drawn from a single sheet of copper or galvanized iron, thereby making a ONE-PIECE SEAMLESS flange with all joints removed from the water-line.

COLLAR is built upon an angle that permits easy adjustment to all types of roofs.

CAULKING RING made of pure soft virgin lead integrally cast to collar by MONARCH leak-proof process.

Fits STANDARD or EXTRA HEAVY soil pipe.

COPPER flanges made from 16-ounce cold rolled copper.

GALVANIZED flanges made from 24-gauge ARMCO IRON.

Base of 4-inch size is 12x16 inches. Other sizes in proportion.

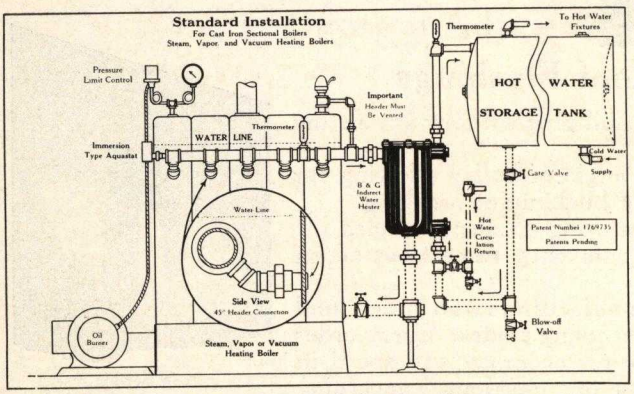
Packed TWO DOZEN to a carton.

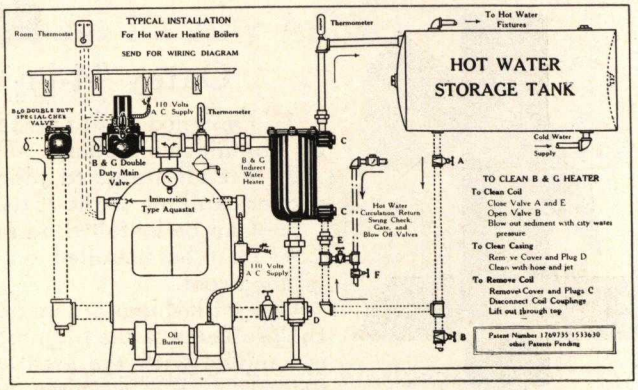
List Price per Dozen

Size . . . . . Inches	1¼	1½	2	2½	3	4	5	6
Galvanized Iron	$ 8.00	$ 8.00	$10.00	$11.00	$11.50	$12.00	$17.00	$30.00
Copper	15.00	15.00	17.00	19.00	19.00	20.00	27.00	40.00
Cast Lead	16.00	16.00	18.00	20.50	20.50	24.00	36.00	52.00

BELL & GOSSETT COMPANY — CHICAGO, ILL.

3000 Wallace Street





Our B. & G. Double Duty Valves carry a license to use the combined hot water House-Heating and Domestic Water-Heating System under Patent No. 1533630. Patent No. 1769735.

B. & G. Indirect Water Heaters

For year-around domestic hot-water service with any steam, vapor, or vacuum heating boiler.

Description	Number	Capacity	Shipping Weights
SINGLE COIL HEATERS	30	30 gallons	12 pounds
	35	35 gallons	13 pounds
Residences,	45	45 gallons	15 pounds
Duplex Apartments,	60	60 gallons	29 pounds
Small Buildings	90	90 gallons	39 pounds
Equipped With	120	120 gallons	42 pounds
Heavy Brass Unions	145	145 gallons	46 pounds
DOUBLE COIL HEATERS	160	160 gallons	60 pounds
Apartments, Garages, etc.,	200	200 gallons	70 pounds
Equipped With	300	300 gallons	85 pounds
B. & G. Thermo-Cheks	400	400 gallons	100 pounds
TRIPLE COIL HEATERS	600	600 gallons	230 pounds
Office Buildings, Factories,	800	800 gallons	250 pounds
Apartments	1000	1000 gallons	290 pounds
B. & G. (DOUBLE) TRIPLE	1200	1200 gallons	560 pounds
COIL HEATERS	1600	1600 gallons	642 pounds
For Heavier Requirements	2000	1800 gallons	716 pounds

B. &. G. INDIRECT HORIZONTAL HEATERS
For High Pressure Boilers—Capacities from 2000 to 5000 Gallons

Important Facts

100 degrees temperature rise in three hours.
Increase the size of heater and tank connections if storage tanks are low or partially below the water line.
Tap every section of all square cast-iron sectional boilers.
If oil heat is used allow 50 to 100% extra heater capacity.

Dimensions

Heater Number	30	35	45	60	90	120	145	160	200
Max. Length, in.	11¾	12¾	14¾	15⅛	18¾	22¾	25¼	12½	15
Max. Width, in.	5 5/16	5 5/16	7⅛	7⅛	7⅛	7⅛	7⅛	9	9
Shell Openings, in.	1	1	1	1½	1½	1½	1½	2	2
Coil Openings, in.	¾	¾	¾	1	1	1	1	1½	1½

Heater Number	300	400	600	800	1000	1200	1600	2000
Max. Length, in.	20	24	22	26	30	24	29	32
Max. Width, in.	9	9	13¾	13¾	13¾	22x29	22x29	22x32
Shell Openings, in.	2	2	3	3	3	4	4	4
Coil Openings, in.	1½	1½	2½	2½	2½	3½	3½	3½

B. & G. Firepot Coil Water Heaters

For use in all warm air furnaces and coal fired hot water heating boilers.



Heater Number	Style	Capacity
30	Cast Iron or Brass	30 gallons
42	Cast Iron or Brass	42 gallons
66	Cast Iron or Brass	66 gallons

All center openings are 2½, 6, and 9-inch.
All openings are tapped 1-inch.
Nos. 30 and 42 are packed six in a carton.
No. 66 is packed three in a carton.
Carton No. 30 weighs 43 pounds.
Carton No. 42 weighs 50 pounds. Carton No. 66 weighs 50 pounds.

B. & G. Double Duty Heater System

For year-around domestic hot-water service with any automatically fired hot water heating boiler.

Number	Recommendations	Weights	Description
41	Bungalows, 1 Bath	108	Combination Unit No. 120 Heater Capacity
51	Small Residences, 1 Bath	105	B. & G. Heater No. 145 Double Duty Valve No. 5
52	Moderate Sized Residences, 1 or 2 Baths	127	B. & G. Heater No. 200 Double Duty Valve No. 5
53	Large Residences, Small Apartments, 2 or 3 Baths	142	B. & G. Heater No. 300 Double Duty Valve No. 5
54	Residences and Apartments, 3 or 4 Baths	157	B. & G. Heater No. 400 Double Duty Valve No. 5

The B. & G. Double Duty Heater System is a combination of the motor operated Double Duty Valve and a regular B. & G Indirect Water Heater.

B. & G. Double Duty Main Valves

Number	Style	Description	Shipping Weight
2	Straitway	Single 2" Main	35 pounds
2½	Straitway	Single 2½" Main	40 pounds
3	Angle	Single 3" Main	23 pounds
3	Straitway	Single 3" Main	55 pounds
4	Angle	Single 4" Main	45 pounds
4	Straitway	Single 4" Main	78 pounds
5	Angle	Two 3" Mains	50 pounds
5	Straitway	Single 5" Main	140 pounds
6	Straitway	Single 6" Main	190 pounds

B. & G. Indirect Oil Pre-Heaters

For Pre-Heating Low Gravity Fuel Oils
LESS CARBON—REDUCED FUEL COSTS—
INCREASED EFFICIENCY
Prices and Sizes are the same as regular B. & G. Indirect Heaters

B. & G. Thermo-Chek

Automatically Controls the Temperature of the Domestic Hot Water on Steam Heating Boilers

Summer or winter, it is no longer necessary to be inconvenienced with hot water that is too hot for ordinary use. Any predetermined temperature for the hot water may easily be maintained by merely setting the small dial on the side of the Thermo-Chek, at the desired temperature.

In hard water districts the Thermo-Chek serves a double purpose, as it is usually set to hold the domestic hot water at a temperature lower than the temperature at which lime has a tendency to form in the water heater coils.

B. & G. Thermo-Cheks may be purchased for use with all sizes, types and makes of indirect water heaters.



THE CLEVELAND HEATER CO. CLEVELAND, OHIO

General Offices 1900 West 112th Street

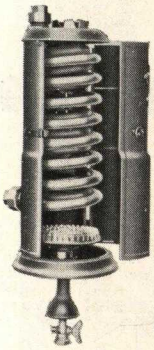
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REX GAS WATER HEATERS

Rex Double Copper Coil Water Heaters



These heaters are approved by the A. G. A. Laboratory and carry the Blue Star Seal.

The copper coils are heavy gauge seamless copper tubing, brazed into large brass connectors, which permit quick circulation of water. Coils are baffled to retain heat and lower stack temperature.

Jackets are of heavy cast-iron, with hinged door, finished in black japan.

Burner is of the Bunsen type, one-piece cast-iron construction. It is fitted on a ground joint and can easily be removed for cleaning. No flash-backs. Burns with a blue cone-shaped flame.

Number	Storage Capacity Gallons	Shipping Weight Pounds	List Price
20	20–30	27	$6.75
31-G	20–30	31	7.35
40-G	30–40	38	10.10
50-G	30–50	40	10.95
70-G	30–70	42	11.90

Rex Model G Automatic Storage Water Heaters



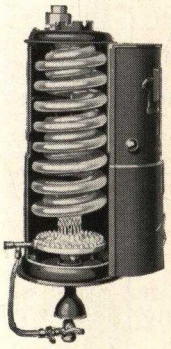
This is the underfired type of heater with external flue. Made in 5 sizes.

A beautiful appearance, rigid construction, no service problem, low initial cost and economical operation make the Rex Model G Automatic outstanding.

The storage tank is double extra-heavy—300-lb. test, galvanized inside and out. Jacket is 20 gauge lead-coated steel. Insulation is Rockwool 1⅝-inch thick. Burner is Bunsen type with 4-port pilot cast in one piece. Model "C" Safety Pilot Control is standard equipment. Steel Draft Hood. Rex Snap-Action Thermostat controls the temperature of water. Can be had in aluminum or sea-green baked enamel finish.

Number	Storage Capacity Gallons	Burner Rating B. T. U.	Shipping Weight Pounds	List Price
12	12	15,000	230	$48.00
17	17	20,000	272	54.00
24	24	30,000	297	60.00
34	34	30,000	365	76.00
50	50	55,000	525	116.00

Rex Dual Burner Water Heaters

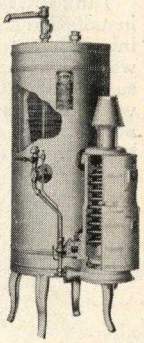


This heater is constructed the same as the Rex Double Copper Coil Heaters except that it is equipped with the Dual Burner and Pilot Line.

The Dual Burner is really a two-in-one burner. It is of the Bunsen type with blue flame and is equipped with a 12-port pilot or secondary burner. This pilot burner will heat 30 gallons of water per day. When a heavy draw is required the main burner is used.

Number	Storage Capacity Gallons	Shipping Weight Pounds	List Price
34-G	20–30	32	$9.10
44-G	30–40	39	12.10
54-G	30–50	40	12.90
74-G	30–70	43	14.40

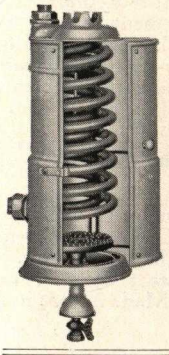
Rex Automatic Storage Water Heaters



This is the side-arm type of heater with a high efficiency. Equipped with snap-action thermostat, "Patrol" Pilot Control, Bunsen type burner, Temperature and Pressure Relief Valve and Aluminum Draft Hood. Storage tank is double extra-heavy, 300-lb. test, galvanized inside and out. Rockwool insulation is used. Brass union water connections are standard equipment. Finished in aluminum or buff baked enamel.

Number	Storage Capacity Gallons	Burner Rating B. T. U.	Shipping Weight Pounds	List Price
24–53	24	25,000	296	$90.00
32–53	32	25,000	316	100.00
42–172	42	45,000	447	150.00
66–172	66	45,000	566	190.00
100–172	100	45,000	704	250.00

Rex Porcelain Enameled Water Heaters



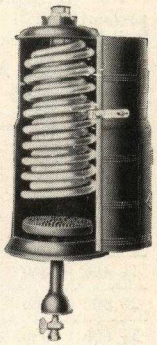
These heaters are the most efficient tank heaters on the market. They showed an efficiency of 80.4% for "Bottled" and Butane-Air Gases. They are built like the Rex Double Copper Coil heaters excepting the jacket construction.

The jacket is made of the celebrated "Armco" iron, finished in durable porcelain enamel. It has a heavy inner liner finished in aluminum. The liner and outer shell form an air-space which serves as an efficient insulator. This cuts down radiation loss and keeps the heat in the jacket.

Brass unions are furnished as standard equipment.

Number	Storage Capacity Gallons	Shipping Weight Pounds	List Price
41-B	30–40	28	$11.00
51-B	30–50	30	11.80

Rex Triple Coil Heaters for Large Volume Water Heating



These heaters are used for large residences, apartment houses, hotels, office buildings, hospitals, bath houses, schools, greenhouses, chicken hatcheries, restaurants, etc. Can also be used for hot water house heating or auxiliary to coal-fired boilers.

Jackets are cast-iron. Coils are 18 gauge seamless copper tubing. Burner is Bunsen type of cast-iron, one-piece construction. Finished in aluminum. Can be had in single units and also in multiple units all hooked up ready for installation. Can be used for either automatic or manually controlled systems.

Number	Capacity Gallons	Recovery per Hour Gallons	Shipping Weight Pounds	List Price
800-A	80–100	58.4	80	$26.30
155	100–150	58.4	83	28.50
160	100–150	58.4	108	46.00

Our Products are Sold Through the Recognized Plumbing Supply Jobber

DAVIS ENGINEERING CORP., NEW YORK, N. Y.

General Offices
90 West St.

Factory
Elizabeth, N. J.

Water Heaters **Paracoil** **Fuel Oil Heaters**

For the smallest residence or the largest apartment house, office building or industrial plant, there is a Paracoil Water Heating Unit designed and guaranteed to fulfill every hot water requirement.

Paracoil Submerged Type Storage Water Heater

For Heating and Storing Water For Residences and Apartment Houses Up to 10 Families.

(Larger sizes on application—Bulletin A-21)



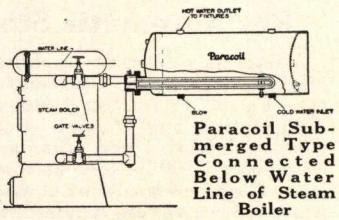
A storage tank and water heater in **one unit.** Heats and stores water for domestic use. This Submerged Type Paracoil Storage Water Heater is installed below the water line of any coal, oil or gas fired steam or hot water boiler.

On oil-fired boilers for all year 'round service, this type heater may be installed (with an inexpensive attachment) so as to maintain hot water in the storage tank at a fixed temperature and at a fuel saving over the separate summer heater method.

This type heater is simple to install and needs no attention; no special valves, steam pressure, etc., to watch. No follow-up service necessary.

Advantages

Tank and heater in one unit; installation costs less; less piping required; fuel saved; no water hammer. No separate summer heater needed; hot water always instantly available, even when fires are banked.



Paracoil Submerged Type Connected Below Water Line of Steam Boiler

Paracoil Apartment House Domestic Water Heater—U-Tube Type

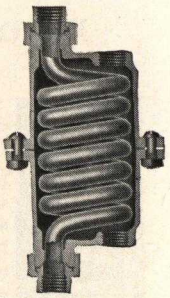


For furnishing adequate hot water economically on large projects such as multi-family apartment houses, hotels, office buildings, restaurants, etc.

Paracoil Apartment House Domestic Water Heaters U-Tube Type

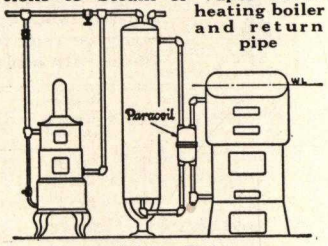
Heater Number	Capacities			Dimensions			Weight in Pounds	List Price
	Below Water Line Tank Cap. in Gal.	Live Steam Tank Cap. in Gal.	Hot Water Radiator Heating Cap.	Diameter Overall in Inches	Length Overall in Inches	Boiler and Water Connections, Inches		
1– 400	400	600	200	10	29⅞	2	120	$72.00
2– 600	600	900	300	12	30	2½	190	122.00
3– 800	800	1200	400	12	36½	2½	218	144.00
4–1000	1000	1500	500	12	42⅛	3	246	169.00
5–1250	1250	1875	625	14½	36⅜	3½	370	231.00
6–1500	1500	2250	750	14½	41⅞	3½	408	256.00
7–2000	2000	3000	1000	16½	42¾	4	520	342.00
8–2500	2500	3750	1250	16½	50¼	4	600	389.00

Paracoil Domestic Indirect Water Heater



For residences and small apartment houses. Attached outside the boiler of any existing or new steam or vapor system. It may be applied above or below the water line, uses no coal or gas. Operates equally well on oil or coal-fired boilers. Extra heavy construction eliminates special care in making installation and relieves the plumber of expensive follow-up service. Extra large seamless drawn copper coils give abundant hot water.

A Paracoil has no brazed joints, no pipe threads inside the shell—nothing to leak, rust or get out of order. Fully guaranteed both as to construction and performance—yet costs no more than ordinary heaters.



Showing Paracoil Heater Connections to Steam or Vapor house heating boiler and return pipe

Sizes, Dimensions, Capacities and List Prices

Size No.	30	40–52	66–82	100–120	150–180	200	300
Diameter, in.	4½	4¾	5¾	6¾	6¾	7¾	10¼
Length, in.	11½	12¾	15¼	15⅞	23⅜	24⅜	25½
Coil Openings, in.	¾	¾	¾	1	1	1½	1½
Shell Openings, in.	1	1	1¼	1½	1½	2	2
Weight, lbs.	14	17	25	39	59	82	125
Tank Capacity in Gallons Below Waterline Installation—Coal Fire	30	40–52	66–82	100–120	150–180	200	300
Tank Capacity in Gallons Below Waterline Installation—Oil Fire	.....	.....	30–40	40–60	66–82	100	150
Tank Capacity in Gallons with Live Steam	45	66–82	100–120	150–180	225–270	300	450
List Price	$6.00	$9.50	$15.50	$27.00	$41.00	$62.00	$85.00

Paracoil Fuel Oil Heater

A widely used and fully guaranteed fuel oil heater with these advantages: Expansion and contraction strains entirely eliminated; no restricted oil passages; complete heating element can be removed for inspection or cleaning; any tube may be removed without disturbing other tubes; responds quickly to temperature changes; horizontal or vertical installation; space requirements less.

Full descriptions and prices on request.

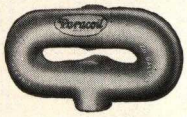
Paracoil Fire Pot Type Hot Water Heater For Hot Air Furnaces

Furnishes abundant hot water at no extra fuel cost when installed inside the fire pot of a hot air furnace. Compact, efficient and does not interfere with stoking or banking the furnace fire.

Used also in conjunction with Paracoil Indirect Type Water Heaters for hot air and hot water installations. Made in cast iron and brass. Write for special price list.

Capacities, Dimensions and Weights

Capacity, Gallons	Dimensions, Inches	Weight, Pounds
30	6⅛x4$^{11}/_{32}$	3½
40	9⅛x4 ¾	7
60	10¾x5 ¼	10

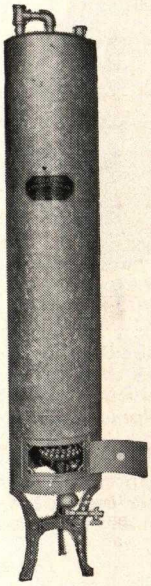


ECONOMY HEATER COMPANY CHICAGO, ILL.

Owner of

Peerless Range Boiler Corporation

Main Office and Factory—2258 Blue Island Avenue

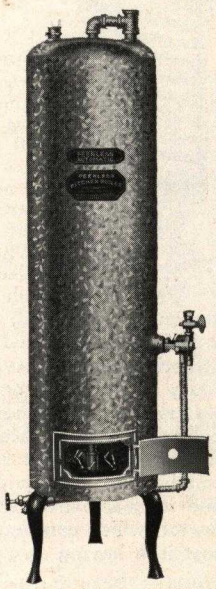


Peerless Regular

Celebrated Peerless Kitchen Boilers

Both Automatic and Non-Automatic, also "Economy Automatic" Storage Gas Water Heaters, with Positive Thermovalve Control.

The Peerless Kitchen Boiler is offered in both the non-automatic type, which is hand operated, and in the automatic type, thermostatically controlled. The Peerless construction is designed to give maximum efficiency in heating the water. Ample clearance away from the disc, or heating element, means a minimum of condensation, thus assuring longer life for the Peerless. The hot water will not mix with the cold in the Peerless because the water is carried throughout the boiler in a pipe and delivered outside the boiler at the hot water line to the house fixtures.



Peerless Automatic

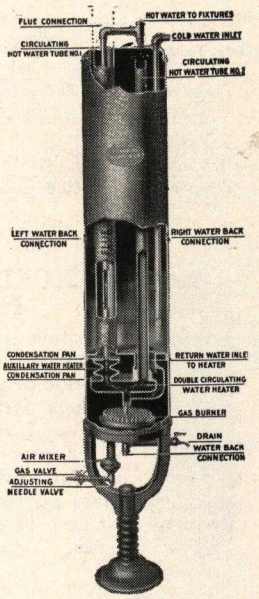
The Peerless Automatic retains this essential feature of circulation and is equipped with a special double seat thermovalve, a Barber burner, a sediment well placed in the gas line, a drain cock, a flue connection, and a set of black Japanned legs.



Economy Automatic

Economy Automatic Storage Gas Water Heaters

The Economy Automatic has double circulation construction allowing quick clearance from the disc or heating element with greatest fuel efficiency. Its principal use is in the larger sizes for factory lavatories, shower rooms, restaurants, large apartments, and small hotels. It is thermostatically controlled and the thermostat is placed midway of the column of water, which means that half the capacity of the boiler must be withdrawn before the flame of the burner rises. Insulation is furnished for the Economy Automatic if desired and can be bought separately, to be installed by the plumber on the job.



Economy Automatic

Contracting Plumbers' Cost F. O. B. Chicago

Subject to Change Without Notice

Number	Dimension Inches	Holding Capacity Gallons	Peerless Regular		Peerless Automatic		Economy Automatic		Insulation
			Weight Pounds	Price Each	Weight Pounds	Price Each	Weight Pounds	Price Each	Price Each
18	12x36	14	100	$14.50	110	$27.00	115	$30.00	$ 7.20
24	12x48	18	120	15.00	130	27.50	135	31.00	8.40
30	12x60	24	135	15.50	145	28.00	155	32.50	9.60
32	14x48	26	138	15.50	148	28.00	165	32.50	9.60
40	14x60	32	160	22.50	170	33.00	175	37.50	10.80
42	16x48	34	165	22.50	175	33.00	180	37.50	10.80
52	16x60	42	190	31.50	200	44.00	195	45.00	13.20
66	18x60	55	225	37.50	.....	.....	235	57.00	15.60
82	20x60	65	.....	.....	.....	.....	255	63.00	16.80
100	22x60	78	.....	.....	.....	.....	300	69.00	19.20
120	24x60	94	.....	.....	.....	.....	365	75.00	21.60

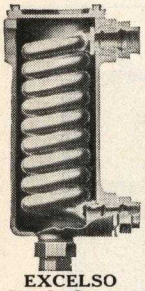
EXCELSO PRODUCTS CORPORATION

Main Office and Plant—65 Clyde Avenue—Buffalo, N. Y.

Stocked and Sold by Wholesalers Countrywide

EXCELSO

Branches in Principal Cities



EXCELSO Single Copper Coil Heater

EXCELSO Indirect Water Heaters

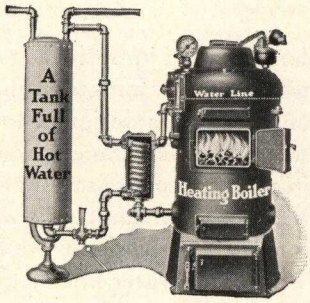
EXCELSO Indirect Water Heaters are made in four types and nineteen sizes. These heaters represent the most economical and efficient method of producing domestic hot water for all types of buildings. Capacities range from 30 to 2500 gallons. The heaters are usually installed below the water line on steam or vapor boilers and many times in connection with automatically controlled hot water heating plant.

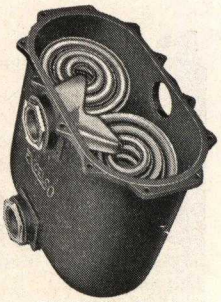
Where an EXCELSO is installed domestic hot water is available all during the heating season or year round, at the lowest possible cost.

EXCELSO Water Heaters are of quality construction thruout having patented ground joint brass connections and all copper and brass waterways, also removable self-draining copper coils. Because of these features clean hot water is delivered to the storage tank. All of the single coil heaters are equipped with two brass and one malleable iron union. The shell of each heater, which connects to the heating boiler, is cast iron having an opening covered by means of a special cover plate which permits easy inspection or cleaning.

Every heater is carefully inspected and tested before shipment.

Shown here is a typical installation of an EXCELSO Single Coil Heater, steam boiler and storage tank, which illustrates clearly the operation of the heater. Boiling water from the heating boiler circulates down thru the shell over the copper coil, heating the domestic water that circulates up thru the coil from bottom to top of the storage tank. The water temperature is all that can be desired for domestic purposes. You will readily see that because of the method of operation of the heater, cost of operation is so negligible as to be practically unnoticed.





EXCELSO Dual Copper Coil Heater

Over 880,000 EXCELSO Installations have been made countrywide and they are saving their owners many dollars in hot water costs. EXCELSO Heaters have been tested and approved by Good Housekeeping Institute.

Capacities—EXCELSO Indirect Water Heaters

Heating Water Below Water Line of Steam or Vapor Boilers

Size of Heater	Jr.	11	12	13	14	15	16	25	26	27	28	34	35	36	37	42	44	46	48
Gals. Tank Capacity	30	30	42	60	82	120	140	160	180	250	372	500	600	800	1000	1200	1600	2000	2500
	.....	32	52	66	90	.....	.....	.....	220	300	420	.....	.....	.....	.....	.....	.....	.....	.....
	.....	40	.....	.....	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Temperature rise 100 degrees in 3 hours.

Heating Water With Live Steam

Size of Heater	Jr.	11	12	13	14	15	16	25	26	27	28	34	35	36	37	42	44	46	48
Gals. Tank Capacity	45	50	75	100	150	200	220	250	300	450	600	750	900	1200	1500	1800	2400	3000	3750

Temperature rise 100 degrees in 3 hours, Steam at 5 pounds pressure.

EXCELSO Direct Water Heaters



EXCELSO Fin Pin Heaters

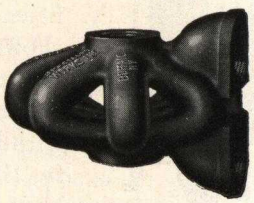
Installed directly into the bed of the fire. The fins on the side of the heater prevent clinkers forming around the unit and allow air passage which prevents deadening of the fire. Made in cast iron, brass and galvanized iron, in 30 and 40 gallon tank capacities.

EXCELSO Fire Pot Generator



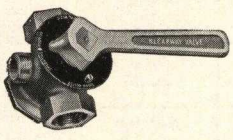
Installed above the fire level in hot water boilers and warm air furnaces. It does not interfere with combustion of fuel or with firing the furnace. Its design gives maximum broad heating surface. It is available in either cast iron, brass or galvanized iron in two sizes; No. 1, capacity up to 40 gallons; No. 2, capacity up to 60 gallons.

EXCELSO Phaeton Heater



Intended for heating the domestic hot water supply or auxiliary radiators, or both. They are placed in the furnace or hot water boiler, above and out of the way of the fire. Made of cast iron, brass, and galvanized iron in six sizes ranging from 30 to 250 gallons capacity for water heating and from 40 to 400 square feet of hot water radiation.

EXCELSO Klearway Valves



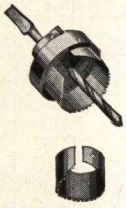
Every water heating installation should be equipped for easy cleaning of heater, tank and piping.

The EXCELSO KLEARWAY Valve is a compact unit designed to do that work. A quarter turn of the valve handle to the right and left of center cleans the water heating system thoroughly. Only half of the system is cleaned at one time so there is no possibility of the water washing out thru the path of least resistance as occurs when an ordinary draw-off cock is used.

The KLEARWAY Valve can be safely used on any indirect or fuel fired water heating system because there is no danger of the valve being left in a position to shut off circulation between the tank and the heater. When the valve is in other than operating position, water will flow from the hose connection.

Each Valve is made from the best grade of materials, thoroughly tested to 125 lbs. working pressure. The KLEARWAY Valve is indispensable in connection with any water heating installation. Made in two sizes—¾" and 1".

EXCELSO Rotary Hack Saw Tool



Boilers may be easily and quickly tapped by means of this tool. Will cut perfectly round holes thru practically any material.

Each Tool cuts holes for either 1", 1¼", 1½" and 2" pipe tap. Price $7.50 net, including 8 blades, 2 of each size.

Extra blades of special semi high speed steel, 35c each.

Can be furnished with power shank drills.

For Excelso Lady Luxury Division See Page 161

ERSKINE COPPER RADIATOR CORP. NEW YORK, N. Y.

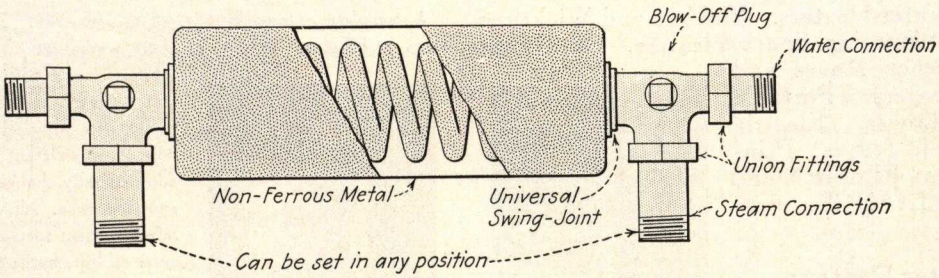
General Offices—1 East 42nd Street

Branches: Boston—Chicago—Philadelphia—Washington

Representatives in Principal Cities

ERSKINE Copper Water Heater

The ERSKINE Rustless Water Heaters are made entirely from copper, with bronze fittings, eliminating all possibility of corrosion and rust accumulation.



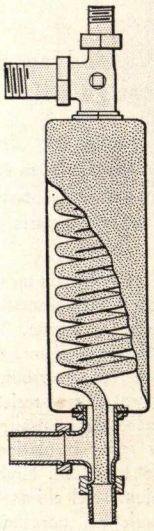
The shell of the ERSKINE Water Heater is of heavy copper with heads and the fittings are tested at 150 lbs. pressure per square inch. This is adequate as it gives a wide margin of safety under all usual conditions.

The coil connected with the pressure water system is tested at 1,200 lbs. being a wide margin of safety under all conditions.

It is recommended that all piping and connections be of brass pipe or copper tubing. Unusual conditions where there is high pressure steam this type of heater can be used in reverse, i.e., by steam passed through the coil which is built to stand the highest pressure.

The ERSKINE Water Heater comes in various sizes and capacities. It is suitable for residences, apartments, hotels, schools or industrial plants. It is fully guaranteed against any defects in workmanship or material.

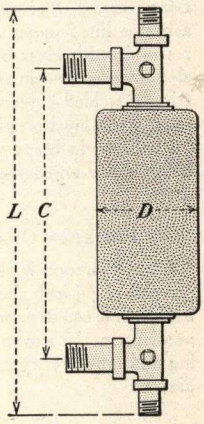
One of the principal features of the ERSKINE Copper Water Heater is its remarkable flexibility. This is made possible by the combination union coupling which often eliminates several fittings, saving time and expense. This combination union joint enables the fitter to make his connections in any position. It is only necessary to loosen the locknut, swing the joint to the desired position and re-tighten the nut. This feature is particularly of value in making installations on boilers that are already in use. In some of these cases the space available for the heater installation is small, but the combination union joint usually makes this type of installation easy.



Size	* 00	0	1	2	3	4	5
List Price	$12.00	$18.00	$26.00	$34.00	$50.00	$75.00	$120.00
Capacity Below Water Line, Gallons	30	40–60	80–100	100–160	160–220	300–350	350–400
Capacity Live Steam, Gallons	48	96	160	246	356	560	640
Diameter, Inches, "D"	3½	3½	4	4	5	5	5½
Length, Inches, "L"	12	18½	20	23½	28¾	33¼	37¾
Center to Center of Boiler Connection "C"	10	13	15	18	22	26	31¼
Boiler Connection, Inches	¾	1	1¼	1½	1½	2	2
Tank Connection, Inches	¾	¾	1	1¼	1¼	1½	1½
Shipping Weight, Lbs. (approximate)		7	9	13	16	20	25

*00 Straight Fittings only.

Capacity based on 100 degree temperature rise in three hours. For oil or gas burner installations, increase size of heater to heat tank 100 degrees in one hour.



Typical Installations

The illustrations below show a few of the many ways the ERSKINE Copper Water Heater may be installed. We will gladly furnish drawings showing installation procedure to meet any special requirements.

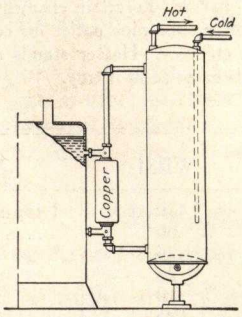


Fig. 1 shows the Erskine Rustless Copper Water Heater connected below the water line of a steam or vapor heating boiler. It consists of a copper housing and a copper coil which is connected to a heavy reversible fitting for which bronze unions are provided. This enables the fitter to make his connections in any position.

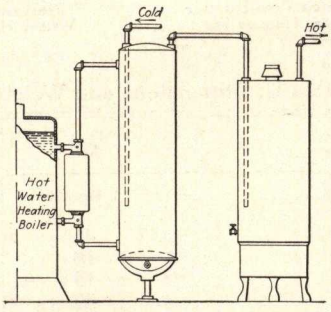


Fig. 4 showing Erskine Rustless Copper Water Heater connected to hot water heating boiler in combination with an automatic storage gas water heater, an intermediate storage tank pre-heating cold water before entering automatic gas water heater, resulting in gas economy.

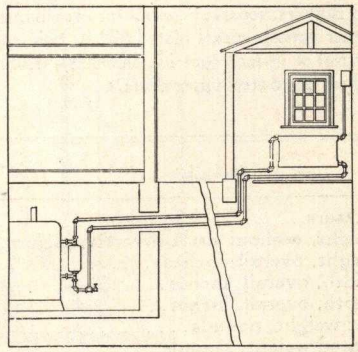


Fig. 12. When using Erskine Rustless Copper Water Heaters for garage heating, they work the same as when supplying domestic hot water. The heated water flows into hot water Erskine Copper Radiators located in garage.

For Erskine Copper Radiators See Pages 307 to 309

FLORENCE STOVE COMPANY GARDNER, MASS.

Established 1872

General Office: Gardner, Mass. Factories: Gardner, Mass., and Kankakee, Ill.

Branch Offices in Principal Cities

Products

Oil-Burning Water Heaters. Wickless and Wicktype Oil Ranges. Oil-Burning Space Heaters. Oil Range Burners for kitchen stoves and living room heaters. Portable Ovens. Gas Ranges. Electric Ranges and Table Stoves. Principal trade names: FLORENCE, GARDNER, RELIANCE.

Florence Water Heaters—Kerosene

W1 and W2 are designed to be hooked up with any range boiler up to 30 gallon capacity, either vertical or horizontal, as an independent unit or an auxiliary to a furnace or kitchen range hot water system.

General Features: Burners are Florence Wickless Type, burn kerosene. Detachable coils of copper tubing. Specially designed pre-heating water chamber, bronze casting; cold water intake and hot water outlet connections carried through for easy installation; asbestos lined upper drum; extra-large upper reservoir with glass bullseye; porcelain enameled lower reservoir and inner cylinders; electrically welded pipeline with removable drain plug; spirit level on pipeline; graphited asbestos packing in brass packing nuts; finished in black baked-on enamel and aluminum bronze.

Florence One-Burner—W1

Giant Florence Wickless Burner; 20 ft. copper coil of 5/8-inch (outside diameter); special baffle inside coil designed for perfect heat transmission; special woven kindler for quick starting and long life; cast-iron burner handle and dial.

Florence Two-Burner—W2

Equipped with two standard Florence Wickless Burners; separate control for each burner; burner handles nickel plated. 28 ft. twin copper coil of 1/2-inch (outside diameter); double-walled, blued steel upper drum.



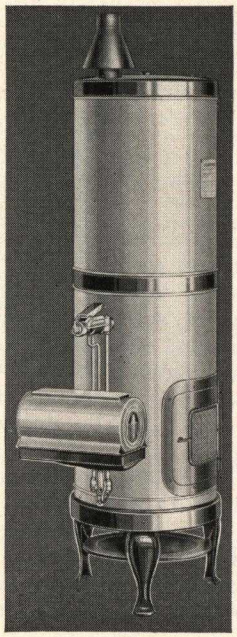
Florence One-Burner Water Heater W1



Florence Two-Burner Water Heater W2

Florence Automatic Storage Water Heater—WB31

A complete automatic unit, all in one piece. Runs indefinitely; maintains a constant supply of hot water, at the degree wanted. An automatic unit with "bellows type" thermostat operated by temperature of water in boiler; specially designed air valve regulates flow of oil to giant Florence burner, which automatically changes from full flame to out and vice versa. Air valve has double shut-off safety device; special pilot light fed by separate oil line, burns continuously. Regulator on thermostat adjustable for Warm, Hot and Very Hot water; heavily galvanized, electrically welded 30 gallon boiler, incased in steel shell; boiler given 250 lb. hydrostatic test; insulated. Flue pipe has draft diverter which prevents chimney drafts from affecting flame. Gray baked-on enamel with black baked-on enamel and aluminum bronze trimmings.

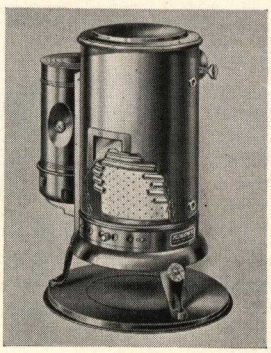


Florence Automatic Storage Water Heater WB31

Florence Giant Water Heater W8—Burns Range Oil

A high-powered water heating unit that meets domestic needs, and has the extra capacity for the requirements of large households, restaurants and other heavy users of hot water.

For connection to water boilers up to 60 gallon size; equipped with standard 8-inch double ring range oil burner. 38 ft. coil of 5/8-inch (outside diameter) copper tubing; lower coils surround burner and pre-heat water; rust-resisting, porcelain enameled double-walled drum with dead air space insulation. Brass oil valve has slot type feed. High, heat-resisting chromium steel chimney cylinders; carbon resisting, porcelain enameled burner bowl; extra large metal oil tank equipped with new double-reading gauge and carrying handle. Porcelain enameled removable top; flue pipe outlet for connection to chimney. Heater stands on porcelain enameled floor tray.



Florence Giant Water Heater W8

Details, Dimensions and Weights

Details	W1	W2	WB31	W8
Burners	1 Giant	2 Standard	1 Giant	1 Double Ring
Height, without draft diverter, inches	.....	.....	66	.....
Height, overall, inches	41 1/2	40	74	30
Width, overall, inches	18	17	28	28 1/2
Depth, overall, inches	15	19 1/2	19	21
Net weight, pounds	30	49	195	67
Crated weight, pounds	48	71	290	105
Capacity of Oil Tank, gallons	2	2	2	3 1/2
Fuel	Kerosene	Kerosene	Kerosene	Range Oil

GLOBE MACHINERY AND SUPPLY CO. DES MOINES, IOWA

205-211 West Court Avenue

Globe Sizzler No Pocket One-Piece Coils

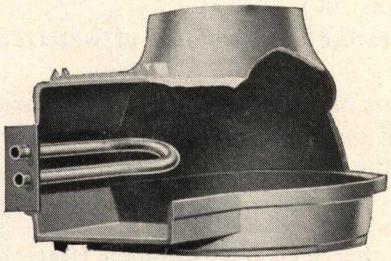
For All Furnaces and Boilers

Double Off-Set Coil

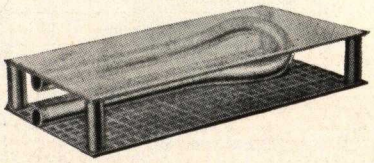


U. S. Pat. No. 1649660. Canadian Pat. No. 284979

Circulation is always in a horizontal or an upward direction to assure rapid circulation. The off-set loop over the fire gives increased benefit of heat. The coil is self draining. No Fittings—No Lime Pockets—No Sharp Bends.



Looking at the wrought steel coil through a straight side view in the furnace.



"Globe" Furnace Coil under glass, showing entire Body of Coil between ends thereof, is contained within two parallel planes.

No. 2 Coil
For Hot Water or Steam Boilers

Similar to the coil for furnaces except it has 45-degree angle bend in top pipe, which places it in the best heating area and prevents it from interfering with fueling.

Made in one size only. Top side 22 inches long extends through boiler, bottom side, less than 14 inches long, allowing connections to be made inside of boiler. Adaptable to any spread from 2½ inches to any desired center.

No. 3 Arco Coil
For Arco Steam or Water Boilers

Made in straight and offset patterns, either 6-inch or 9-inch centers. Straight pattern projects straight out into firebed. Offset pattern lays along side of boiler. This coil is one piece, no-pocket construction and assures rapid circulation. Made 1-inch I. P. size only.

Sizes and Dealers' Prices
"Globe" No Pocket One Piece Furnace Coils

Effective January 1, 1932

¾-Inch I. P. Size			1-Inch I. P. Size		
Steel	No. 1 Length Inches	Brass	Steel	No. 1 Length Inches	Brass
$2.70	18	$6.30	$2.80	18	$6.75
2.90	20	6.45	3.00	20	7.40
3.00	22	6.60	3.20	22	8.00
3.10	24	7.00	3.30	24	8.60
3.20	26	7.25	3.40	26	9.25
3.40	28	7.70	3.60	28	9.75
3.60	30	8.40	3.90	30	10.85
3.90	32	8.70	4.10	32	11.40
4.20	34	9.10	4.40	34	12.05
4.40	36	9.70	4.60	*36	12.65
4.70	38	10.20	4.90	*38	13.25
5.00	40	10.80	5.20	*40	13.90
5.20	42	11.20	5.50	*42	14.50
No. 2 Coil			$3.50		$8.00
No. 3 Arco Coil					
6 in. centers.	*Straight Pat.		2.40		6.00
	*Offset Pat.		3.00		6.80
9 in. centers.	*Straight Pat.		2.50		6.30
	*Offset Pat.		3.20		7.20

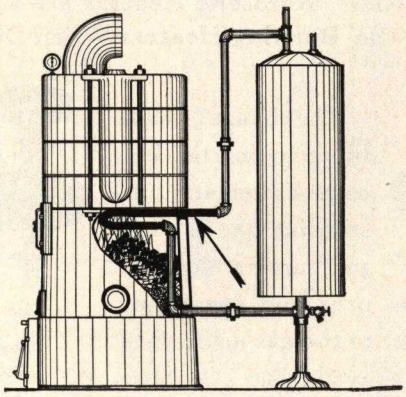
*36, 38, 40 and 42-inch Sizzler coils and Arco coils are not packed in individual carton.

Sizes and Weights

Length Inches	Pounds ¾-Inch	Pounds 1-Inch	Length Inches	Pounds ¾-Inch	Pounds 1-Inch
18	5	7¼	32	8¾	11
20	5½	7½	34	9	11½
22	6¼	8⅛	*36	7	10½
24	6⅓	8½	*38	7⅛	11
26	7¼	9½	*40	7¾	11½
28	7½	9½	*42	8	12
30	8⅓	10¾			

	Pounds
No. 2 Coil. 1-inch only	7¼
No. 3 Arco Coil 1-inch only, straight or offset.	
*9-inch centers	4½
*6-inch centers	4

*Not packed in individual cartons.



No. 2 Coil Installed

THE HOLYOKE HEATER CO. HOLYOKE, MASS.

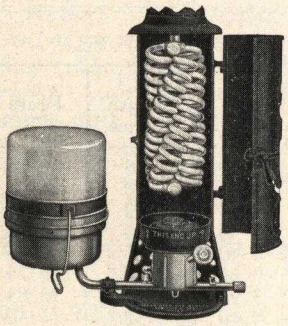
Branch Offices

New York, N. Y., 2239 Webster Avenue

Philadelphia, Pa., Delaware Ave. and South St.

"HOLYOKE" WATER HEATERS

"Holyoke" Kerosene Tank Water Heaters

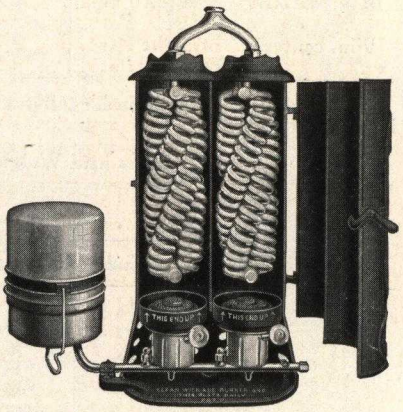


No. 80 Single Burner Kerosene Heater

The design of the "Holyoke" quadruple patented copper coil makes it an unusually rapid heater. The tubes are of such size that, in the aggregate, they present the greatest amount of heating surface to the water passing through them. Each of the four tubes is 7/16-inch in diameter.

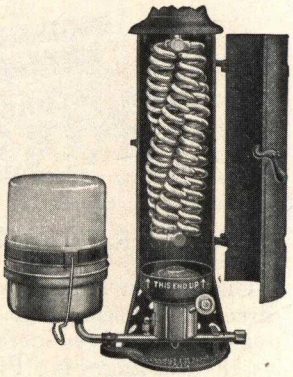
The Burner is our new Improved blue flame wick type. It is instantly and positively regulated and combustion is practically odorless. All heaters are equipped with the swing burner, which simplifies the care and operation of the heater. This is an exclusive "Holyoke" feature.

The Shell of the heaters are of cast iron attractively finished in durable black enamel.



No. 200 Twin Burner Kerosene Heater

The Single Burner Heaters (Nos. 80 and 100) will heat water for toilet and shaving in 4 to 6 minutes, in 15 to 20 minutes for dishwashing, and an ample quantity of water for the bath in about 45 minutes, depending upon the size of the heater. The Twin Burner Heater (No. 200) will take care of the above in one-half the time.



No. 100 Single Burner Kerosene Heater

The Single Burner Heater (No. 100) operating at maximum capacity will raise the temperature of one gallon of water 14 degrees F. per minute. The Twin Burner Heater (No. 200) will raise the temperature of one gallon of water 28 degrees F. per minute.

One gallon of Kerosene (coal oil) is sufficient for 12 to 24 hours of operation per burner, depending upon the height of the flame used. The oil reservoir holds nine (9) pints.

Specifications—Kerosene Heaters

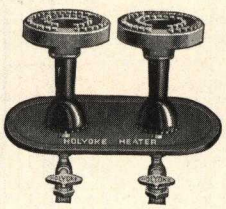
Heater No.	No. 80 Single	No. 100 Single	No. 200 Twin
Capacity ..... gallons	30	30–40	52–60
Water Connections ..... inches	¾	¾	¾
Height ..... inches	22¼	26	26
Size of Shell ..... inches	6 (diam.)	6 (diam.)	6x12
Size of Base ..... inches	8 (diam.)	8 (diam.)	8x13
Floor space required ..... inches	17x9	17x9	22x9
Net Weight ..... pounds	34	36	67
Shipping Weight ..... pounds	49	52	85
List Price	$22.00	$26.00	$47.00

All "Holyoke" Kerosene Heaters are Convertible Into Gas Burning Heaters When Desired



Gas Burner For Single Holyoke Heater

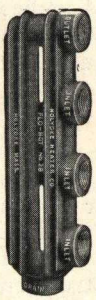
The change is made by removing the kerosene burner and substituting one of these gas burners and drip pans and connecting to the gas main when available.



Gas Burner for Twin Holyoke Heater

"Holyoke" Firepot Generators

Brass, Black Iron and Galvanized



No. 28

For use in Hot Air Furnaces and Hot Water Heating Boilers.

Installed in the fire box just above the coal. It does not interfere with the combustion of fuel or with firing of the furnace or heating boiler.

Number 28, capacity up to 30 gallons. Number 30, capacity up to 50 gallons.



No. 30

"Holyoke" Gas Tank Water Heaters

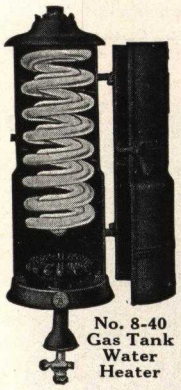
"Holyoke" Water Heaters embody the latest scientific principles and are designed to meet the most exacting demands; the new improvements also give these heaters a sales value that means greatly increased sales and profits.

"Holyoke" Heaters operate with the highest degree of **efficiency and economy** and furnish a maximum amount of hot water at a minimum cost. The inconveniences and dangers present in ordinary heaters are eliminated in the "Holyoke." These heaters are sturdily constructed of high grade material that will give many years of highly satisfactory service.

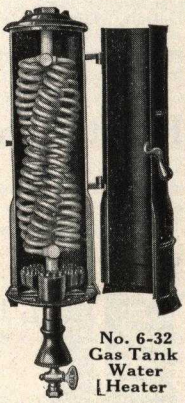
Heaters Numbered 8-20 to 8-80, inclusive, are furnished with ground joint brass unions for both inlet and outlet water connections. These unions effect a big saving in labor and material costs when installing the heaters.

The "Holyoke" No. 6-32 Gas Water Heater is equipped with the famous quadruple patented coil which makes it an unusually rapid heater. The shell is of cast iron, the lower part of which has an air jacket or double wall surrounding the heat zone. This air jacket serves as an insulator and minimizes the amount of heat radiated from the shell.

The "Holyoke" coil is reversible, that is, it may be removed and replaced in an inverted position after long use, thus doubling its life.



No. 8-40 Gas Tank Water Heater



No. 6-32 Gas Tank Water Heater

Specifications—Gas Heaters

Heater No.	Capacity Gallons	Coil Diameter Inches	Coil Length Ft.	Coil Length In.	Height Inches	Diameter Inches	Shipping Weight Pounds
6–32	30–60	7/16	30	0	24½	8	48
8–20	30	¾	14	6	19	8	32
8–25	30	¾	16	6	21½	8¾	40
8–40	30–40	¾	17	6	24	8¾	41
8–50	40–52	¾	20	0	24	8¾	42
8–70	40–66	¾	22	0	25	8¾	46
8–80	52–82	¾	25	0	25	8¾	47

Gas connections: ½-inch. Flue connections: 3-inch.

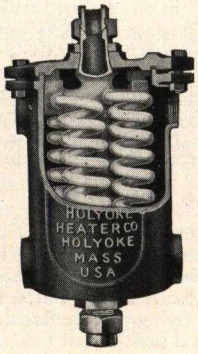
All "Holyoke" Gas Heaters, with the exception of No. 6-32, can be furnished with Ball Joint Brass or Galvanized Unions with the following threads at no extra charge: ¾-inch—20 Fine Thread, ½-inch Standard Pipe Thread, ¾-inch Standard Pipe Thread. Unless otherwise ordered, Heaters will be equipped with ¾-inch Standard Pipe Thread Ball Joint Brass Unions.

Heaters numbered 8-20 to 8-80, inclusive, also furnished without unions.

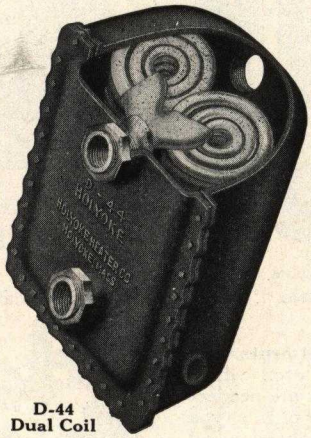
"Holyoke" Indirect Water Heaters



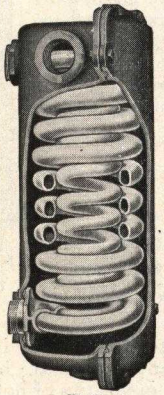
A-5 Single Coil



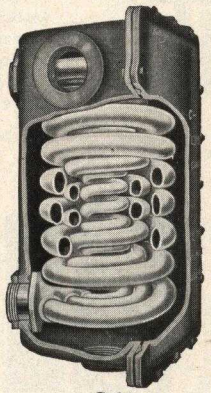
A-16 Quadruple Coil



D-44 Dual Coil



B-11 Double Coil



C-14 Triple Coil

"Holyoke" Indirect Heaters connected just below the water line of Steam or Vapor heating boilers utilize the hot water from the boiler to heat water for domestic purposes. This method supplies hot water at practically no additional cost. It is the most efficient and economical way of obtaining a continuous supply of hot water twenty-four hours a day.

"Holyoke" Heaters may also be installed above the water line on pressure boilers, thus using live steam to heat the water.

Frequently occasions arise when additional heating radiation is required. "Holyoke" Indirect Heaters are particularly well adapted for furnishing this additional heat to garages or any room not regularly supplied from the main heating plant.

"Holyoke" Heaters are particularly adapted for preheating oil either below the water line or with steam. The larger sizes are equipped with special tappings which provide for the installation of an electric preheating element.

Specifications—Indirect Heaters

	Single Coil							Double Coil			Triple Coil			Dual Coil			Quadruple Coil		
Heater Size	A-4S	A-4	A-5	A-6	A-7	A-8	A-9	B-10	B-11	B-12	C-13	C-14	C-15	D-42	D-44	D-46	A-16	A-24	A-32
Length...Inches	9¾	9¾	12¾	15¾	16¼	20⅛	21¼	16¼	20⅝	25	22¾	26⅞	31¼	23	27	31	11	15⅛	19¼
Width...Inches	6¼	6¼	6¼	6½	8⅝	8¾	9¼	11¾	11¾	11¾	16¾	16¾	16¾	28¾	28¾	28¾	6¼	6¼	6¼
Depth...Inches	5⅜	5⅜	5⅜	5⅜	8	8	8⅞	10¼	10¼	10¼	14⅝	14⅝	14⅝	14½	14⅝	14⅝	6¼	6¼	6¼
Shell Openings. Inches	1	1	1	1	1½	1½	2	2	2	2	3	3	3	4	4	4	1	1¼	1½
Coil Openings. Inches	¾	¾	¾	¾	1	1	1¼	1½	1½	1½	2½	2½	2½	3	3	3	¾	¾	1
Weight Crated. . Lbs.	12	13	16	21	50	58	68	95	115	138	195	250	320	500	560	640	34	47	56

Heating Water Below Water Line of Steam or Vapor Boiler—Three Hour Basis—Temperature rise 100 degrees in 3 hours

Heater Size	A-4S	A-4	A-5	A-6	A-7	A-8	A-9	B-10	B-11	B-12	C-13	C-14	C-15	D-42	D-44	D-46	A-16	A-24	A-32
Capacity.....Gallons	30	30 40	42 52	66	90 100	120	160	220	300	420	600	800	1000	1200	1600	2000	70	110	140

Heating Water with Live Steam—Three Hour Basis—Temperature rise 100 degrees in 3 hours at 5 lbs. pressure

Heater Size	A-4S	A-4	A-5	A-6	A-7	A-8	A-9	B-10	B-11	B-12	C-13	C-14	C-15	D-42	D-44	D-46	A-16	A-24	A-32
Capacity.....Gallons	45	50	75	100	150	200	250	300	450	600	900	1200	1500	1800	2400	3000	110	172	218

THE HOTSTREAM HEATER CO. CLEVELAND, OHIO

General Office and Factory—7800 Finney Avenue

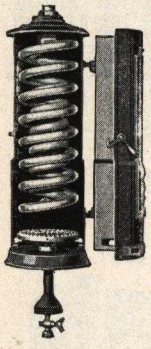
Representatives

Boston, Mass., E. Stanley Freeman, 207 A. St.
Buffalo, N. Y., J. W. E. Hughes, 317 No. Park Ave.
Chicago, Ill., Chas. F. Stumpf, New Lawrence Hotel, 1020 Lawrence Ave.
Dallas, Texas, Leon M. Taylor, 10th Floor, Santa Fe Bldg.
Denver, Colo., Geo. Hamburger Co., 1715 California St.
Des Moines, Iowa, R. J. Shank Co., Old Colony Bldg.
Detroit, Mich., E. Sanger, 1045 Wayburn Ave.
Los Angeles, Cal., Wm. P. Horn Co., 509 Wilcox Bldg.
Louisville, Ky., E. W. Bethel, 2222 Highland Ave.
Minneapolis, Minn., Fred S. Wilsey, Plymouth Bldg.
New York, N.Y., John G. Kelly, Inc., 210 E. 45th St.
Philadelphia, Pa., Chas. Lipschutz, 1033 Drexel Bldg.
Portland, Oregon, Geo. H. Killits, 711 Dekum Bldg.
Richmond, Va., Eichel & Co., 1107 E. Main St.
San Francisco, Cal., Wm. P. Horn Co., 58 Federal St.
Toronto, Ont., Canada, W. H. Cunningham & Hill, Ltd., 269 W. Richmond St.

The Hotstream TRADE MARK REG. WATER HEATER

Hotstream Water Heating Appliances Lead in Quality, Efficiency and Value

Tank Heaters—Automatic Storage Heaters—Indirect Heaters—Accessories



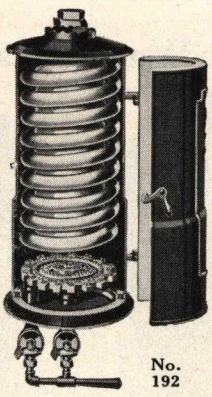
No. 25U

Double Copper Coil Heaters

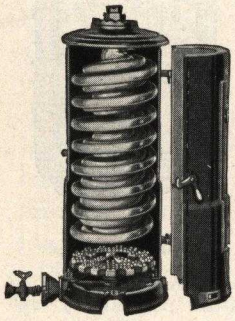
Supplied in a full line of sizes, both with 20 and 18 Stubbs gauge. Finished in black Japan or enameled in grey, green or fawn.

Heavy Duty Heaters

Intended for use in hard water districts, also where extremely large quantities of hot water are needed. Made in single, double and triple coil types.



No. 192



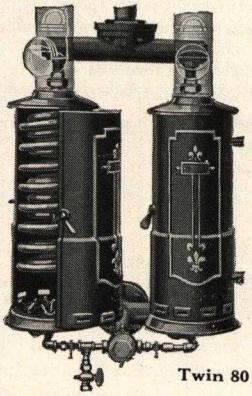
No. 80U

Triple Coil Heaters No. 80U

Intended for use in apartments, restaurants, garages, hotels, etc., where large quantities of hot water are needed. No. 80U is a standard heater of this type and is extremely efficient and economical in operation.

"Twin 80" Triple Coil Heaters

This powerful combination consists of two No. 80U heaters connected to manifolds, top and bottom, with thermostat in the lower manifold. Are used where extremely large quantities of hot water are needed as well as for supplying hot water radiation for room heating.



Twin 80



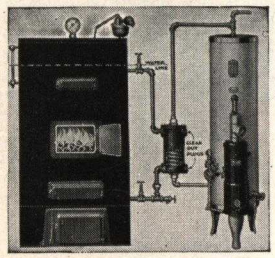
No. 20 KW

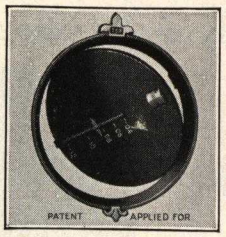
Kerosene Water Heaters No. 20KW

Made in three types—20KW, as illustrated, 20GK, larger size, and Twin KW, double the capacity of 20KW, with burner. Efficient, economical and noiseless.

Indirect Heaters

Connected to steam or vapor boilers for supplying hot water to the regular storage tank at minimum cost. Supplied in all sizes, from the smallest type for domestic heating to the giant commercial types.





Hotstream Draft-O-Stat

By automatically controlling the draft in oil, gas and stoker fired furnaces, it prevents heat loss and provides uniform combustion. Draft-O-Stat is a scientifically designed draft control built with the utmost precision. Frequently pays for itself in the first season's use. Made in 6 to 20-inch sizes.



Draft Regulator

Draft Regulator

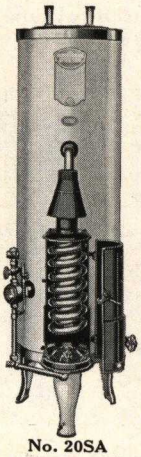
An automatic device which effectually prevents down drafts from blowing out gas flame or pilot. Also prevents heat loss by regulating flue draft. 3 to 8-inch sizes.



No. 3

Thermostats

Throttling type No. 3 is equipped with "Passover" pilot, an improvement over the pilot light control. Simple and effective. Recommended for use with jet type burners. Where drilled burners are used, install a Hotstream Snap Action-Thermostat.



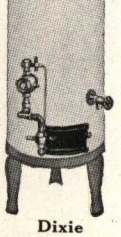
No. 20SA

Automatic Storage Heaters

Side Arm type. Consists of double extra heavy storage tank, heavily insulated and beautifully finished. Made in 20 to 82 gallon sizes, galvanized or copper tanks.

Dixie Automatics

A very high grade "fire under the tank" type. Made in 20, 30 and 40 gallon sizes. Supplied either with jet burner and throttling thermostat or with drilled burner and "snap" thermostat.



Dixie

JOHANSON WATER HEATER COMPANY CHICAGO, ILL.

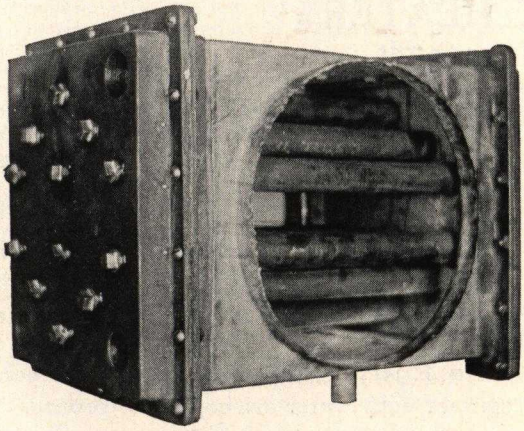
General Offices and Plant—1239 Fullerton Avenue

Representatives in Principal Cities

Save-Hete Water Heaters

The Save-Hete Water Heater (Heaps Patent) is a scientifically designed and constructed unit that utilizes waste chimney heat. It can be used with Oil, Coal or Gas Fired Boilers and for installation in Residences, Apartments, Hotels, etc.

The Save-Hete will absorb most of the waste gases that usually go up the chimney and by so doing add to the efficiency of the boiler and in addition supply hot water for domestic use. With this process there is no chance of overheating the domestic water at any time, as the domestic water is heated by water from the boiler, and this water absorbs the waste heat gases of the breeching. Thus, it is impossible at any time to create any pressure on the domestic water that is heated.



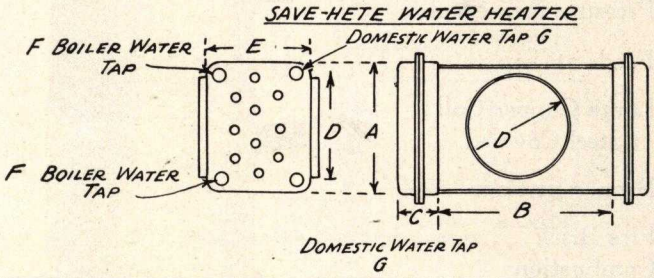
Actual photograph showing design and construction. Note plugs which can be removed for easy cleaning of tubes.

Construction

The Save-Hete Water Heater is constructed of two cast iron heads into which tubes are connected, and on the outer heads plugs are placed so the tubes may be cleaned out at any time. The inner construction consists of a tube within a tube. The smaller or inside tube is where the domestic water is heated. The larger tube is where the boiler water circulates. This water is taken from the boiler just below the water line, then passed through the heater and returned back to the lower portion of the boiler. By this method the tubes containing the domestic water are constantly covered with the boiler water assuring a plentiful supply of hot domestic water as long as the boiler is in operation. All of these heaters are made to conform to the best practice of engineering and are acceptable to the boiler inspection and insurance companies, also made in accordance with the A.S.M.E. boiler heating code.

Operation Test

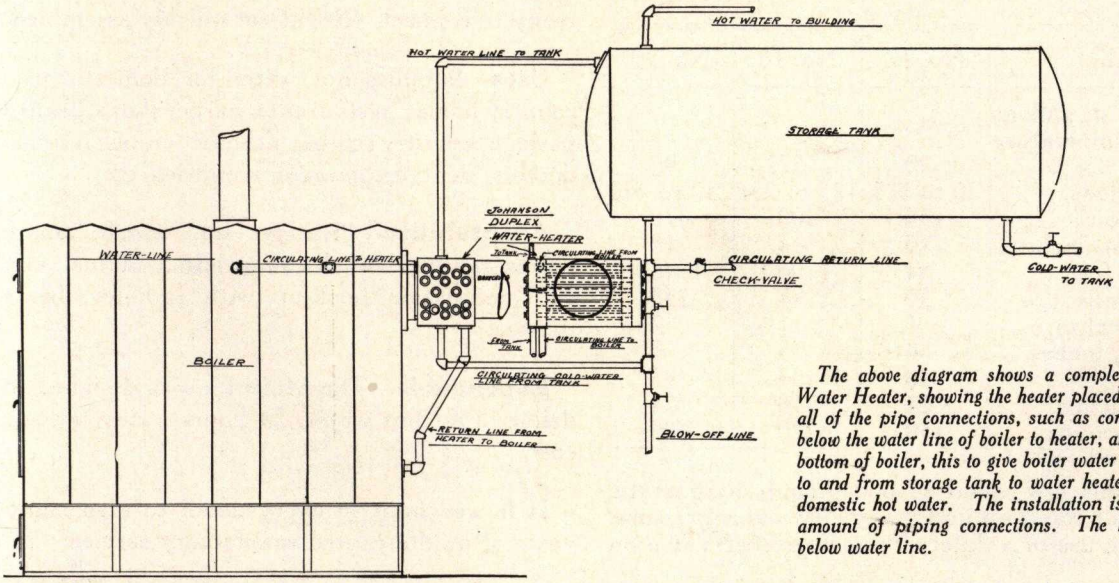
In a test made on a cast iron boiler, being operated with steam for a three flat building, the temperature of gases were entering the breeching at 560 degrees. After these gases passed through the Save-Hete Water Heater, the temperature was reduced to 292 degrees. The saving in operation showed 12% in fuel, while at the same time an ample amount of hot water was delivered to the storage tank at 160 degrees temperature. This signifies the saving that can be had with a Save-Hete Water Heater installed in connection with the boiler and breeching.



Number of Heater	Size of Building	Number of Gallons per 3 Hours	Size Storage Tank	Dimensions, Inches						
				A	B	C	D	E	F	G
11	Bungalow Two-Flat	120	80	12	12	4	10	10	1½	1¼
12	3	160	120	14	16	4	13	12	2	1¼
13	6	250	160	20	20	4	18	18	2	1½
14	9	320	200	24	24	4	18	18	2	1½
15	12	400	260	28	24	4	20	20	2½	2
16	18	600	320	32	26	6	24	20	2½	2
17	24	800	450	36	30	6	24	24	3	2

The above Heaters carried in stock. Larger sizes made special.
Breeching openings furnished in any size required.

Installation Diagram



The above diagram shows a complete hookup of a Save-Hete Water Heater, showing the heater placed in breeching, and showing all of the pipe connections, such as connecting one line from just below the water line of boiler to heater, and another line returning to bottom of boiler, this to give boiler water circulation, also the piping to and from storage tank to water heater for the circulation of the domestic hot water. The installation is very simple, with a small amount of piping connections. The heater in all cases placed below water line.

Also Manufacturers of the Johanson Submerged and Indirect Water Heaters. Information gladly furnished on request

THE NATIONAL PIPE BENDING CO. NEW HAVEN, CONN.

Established 1883

102 River Street

Branch Offices:

Boston, Mass., 38 Chauncy St. New York, N. Y., 39 Cortlandt St. Philadelphia, Pa., 517 Drexel Bldg.

Instantaneous Water Heaters
Process Water Storage Heaters
Feed Water Heaters
Coils, Pipe and Tube
Heat Reclaimers
Welded Headers
Caustic Liquor Heaters
Fuel Oil Heaters
Preheaters

NATIONAL
MULTI-FLOW TANK HEATERS
With Aqua-Matic Regulator Outfit

Check Damper

Turn Damper

Regulator

Pressure Relief Valve

Feeds at Top

Large Copper Coil
Steel Covered

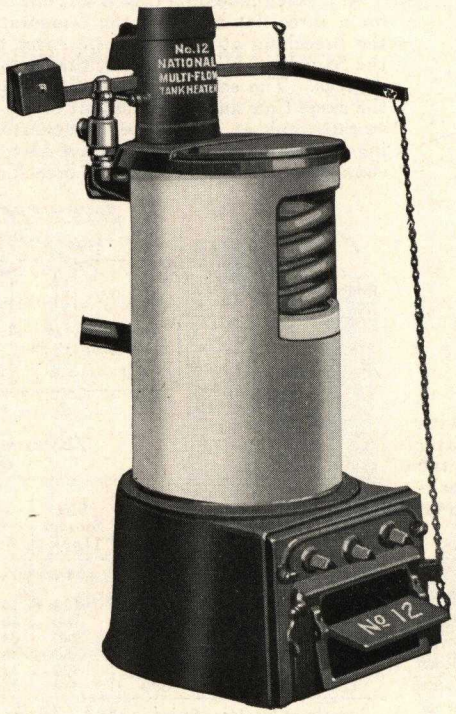
Bronze Fittings

Fire Brick
Combustion
Chamber

Triangular Grates

Lift Draft

Enclosed Base



Specifications—Multi-Flow Tank Heaters

	No. 12	No. 16	No. 20
Heating capacities in gallons per hour at a temperature rise of 100°	30	57½	96
Tank capacity, gallons	30 to 125	125 to 250	250 to 450
Square feet radiation	155	300	475
Diameter of fire pot, inches	10	14	18
Grate area, square feet	.54	1.06	1.48
Fuel capacity, pounds	50	95	258
Flow and return, inches	1	1½	2½
Size of smoke pipe, inches	4½	5½	7
Height, inches	30	33	45
Diameter of top, inches	14	18	24
Shipping weight, pounds	150	220	480

Tank Heater Coils are tested to 600 pounds hydrostatic pressure so they will stand up under any city water pressure. We recommend the use of a Safety Pressure Relief Valve on all installations.

Copper Coil—Large copper coil, steel covered, directly over heating surface, absorbs most heat from fire, gives rapid circulation.

Fire Brick Combustion Chamber—Holds heat, prevents cooling of fire, and eliminates cracked fire pots due to inrush of cold water.

No Rusty Water—All parts that come in contact with water are copper or bronze.

Aqua-Matic Regulator Outfit—Controls fire with no attention over period of 48 to 72 hours with one fueling, in average home.

Fuel—Burns hard or soft coal, pea coal, coke, wood, oil or gas—all with maximum fuel efficiency and minimum labor.

Attractive — The jacket is red vitreous enamel, double fired, with snappy gloss black japanned top and base, Nos. 12 and 16. Aluminum finished jacket, No. 20.

Easily Installed—Heater shipped complete ready to connect. Regulator quickly assembled.

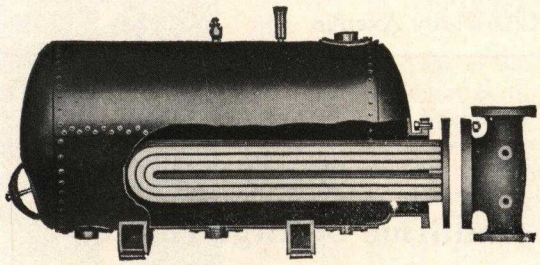
Uses—Supplies hot water for domestic use, country homes, restaurants, barber shops, beauty parlors, country clubs, athletic clubs, dairies, doctors, dentists, garages, laundries, etc.

Adaptability—Heating sun porch, spare rooms, garage, small bungalows, cabins, etc. In combination hook-up with radiator, heats rooms.

Dependable—The Multi-Flow is designed to deliver 150° hot water, 24 hours a day, at low cost.

It is well built in every detail to give many years of uninterrupted satisfactory service.

National Red Head Storage Heaters



Are built to meet the hot water requirements of Apartments, Clubs, Hotels, Schools, Industrial Plants, Hospitals, etc.

Construction

Tanks—Made of Tank Steel having convex bumped heads of Flange Steel and are fabricated.

Heating Element—"U" Bends of 1¼-inch No. 16 B. W. G (.065-inch Wall) pure seamless drawn Anaconda copper tube expanded in forged steel tube sheets—flared at the back of sheet, beaded at front, and covered on open ends by a divided cast iron distribution chamber tapped for steam inlet and condensation drain. All bolted joints are machined and packed with sheet gaskets. Each bend is composed of one single length of tube without joints of any kind and the spacing in open ends in tube sheet is designed to secure economical disposition of the heating surface with regard to the water circulating areas between tubes within the tank. The actual bends at the rear end of the element are die made and of full tube area, without flattening or buckles.

Port—The port to which heating element is bolted is made of heavy steel pipe with Van Stone Flanges securely electrically welded to tank by special process.

Piping Conditions—Water Inlet and Outlet connections are reinforced screwed connections made through boiler flanges riveted to tank. Smaller tappings for air and water relief valves, thermometers, etc., are either welded steel spuds or are drilled and tapped through the tank, and reinforcing spuds riveted to shell.

Manhole—A standard 11x15-inch manhole is provided in all sizes above 18-inch. It is of heavy construction with steel plate, yoke and bolt. Is located in rear head to allow easy access for cleaning.

Test—National Red Head Storage Heaters are built for 100 pounds working pressure, tested to a hydrostatic pressure of 150 pounds. Heaters will be tested to meet any state requirements.

Steam Cover—Heaters having steam connections 3-inch and above are furnished with the New Improved Steam Cover having a flanged inlet and outlet made in the shape of a "T."

Eccentricities of Ports "X"

Tank Diameter

Port Sizes	18	24	30	36	42	48	54	60	72
5	4	7	10	13	16	19	22	25	31
6	3½	6½	9½	12½	15½	18½	21½	24½	30½
8	2¼	5¼	8¼	11¼	14¼	17¼	20¼	23¼	29¼
9	1½	4½	7½	10½	13½	16½	19½	22½	28½
10	1	4	7	10	13	16	19	22	28
12	.....	2½	5½	8½	11½	14½	17½	20½	26½
14	.....	1½	4½	7½	10½	13½	16½	19½	25½

Distance "R" Screwed—Steam Connections

5	6¾	6½	6¼	5¾	5	4½	3¾	3½	1¼
6	6¾	6¾	6¼	6	5½	4¾	4¼	3½	1½
8	6½	6¾	6¾	6½	6¼	5½	5¼	4½	2½

Distance "S" Flanged—Steam Connections

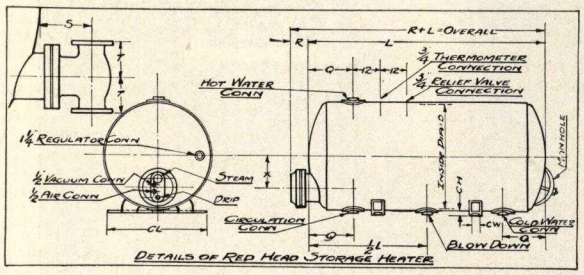
8	9⅛	9⅜	9⅜	9⅛	8⅞	8⅛	7⅞	7⅛	5⅛
9	10⅝	10⅞	11⅛	11⅛	10⅝	10⅛	9⅞	9⅞	7⅜
10	11½	12¼	12¼	12¼	12	11¾	11¼	10¾	9
12	.....	12	12⅜	12⅜	12⅜	12⅛	11⅞	11⅜	9⅞

Steam Connections

Port Sizes	8	9	10	12
Dimension "T." Inches	8	8	9	10 7/16

Tanks

No. Hor.	Gallons Storage One Fill	Sizes in Inches	Wt. Empty Lbs.	Standard Opening in Inches		Circulation	Dim. Q	Cradles		C. H. Height
				Water	Blow			C. L. Length	C. W. Width	
A	80	18x72	380	1¼	1	1	10	18½	2½	⅜
B	141	24x72	530	2	1	1	10	25	3	1⅛
C	220	30x72	870	2½	1¼	1¼	12	28	3	¾
D	310	36x72	1020	2½	1¼	1¼	14	33	4	1⅞
E	365	36x84	1130	2½	1¼	1¼	14	33	4	1⅞
F	475	36x108	1350	2½	1¼	1¼	14	33	4	1⅞
G	575	42x96	1750	3	1½	1¼	16	36	4	1½
H	645	42x108	1900	3	1½	1¼	16	36	4	1½
I	720	42x120	2050	3	1½	1¼	16	36	4	1½
J	860	42x144	2350	3	1½	1¼	16	36	4	1½
K	940	48x120	2410	3	1½	1¼	18	39	4	1
L	1130	48x144	2770	3	1½	1¼	18	39	4	1
M	1300	48x168	3100	3	1½	1¼	18	39	4	1
N	1425	54x144	3750	4	1½	1¼	18	46	5	1¾
O	1665	54x168	4300	4	1½	1¼	18	46	5	1¾
P	2000	60x168	5200	4	2	1½	18	49	5	1⅜
Q	2460	72x144	6500	5	2	1½	21	55	5	1
R	2875	72x168	7600	5	2	1½	21	55	5	1



Heating Elements

No.	Gallons Heated Per Hour	Smallest Tank into which Element Will Go	Weight in Pounds	Port Size Inches	Port Projection "R"	Steam Connections	
						Inlet Screwed	Outlet Screwed
NS-1	80	18x72	85	5	6¾	1	½
NS-2	100	18x72	88	5	6¾	1¼	¾
NS-3	150	18x72	96	5	6¾	1¼	¾
NS-4	200	18x72	117	6	6¾	1½	1
NS-5	250	18x72	122	6	6¾	2	1¼
NS-6	300	18x72	185	8	6½	2	1¼
NS-7	350	36x84	189	8	6½	2	1¼
NS-8	400	36x84	195	8	6½	2½	1¼
NS-9	450	42x96	205	8	6¼	2½	1¼
NS-10	500	42x96	210	8	6¼	2½	1¼
					"S"	Flanged	Flanged
NS-11	600	42x96	260	8	8⅞	3	2
NS-12	700	42x108	270	8	8⅞	3	2
NS-13	800	42x108	285	8	8⅞	3	2
NS-14	900	42x108	343	9	10⅝	3½	2
NS-15	1000	42x108	357	9	10⅝	3½	2
NS-16	1250	42x108	440	10	12	4½	2½
NS-17	1500	42x108	468	10	12	4½	2½
NS-18	1750	42x108	575	12	12⅜	5	3
NS-19	2000	42x108	620	12	12⅜	5	3
NS-20	2500	42x108	755	14	13	6	3½

Above sizes are standard. Sizes other than shown are special and built to order. Send for Bulletin No. 65.

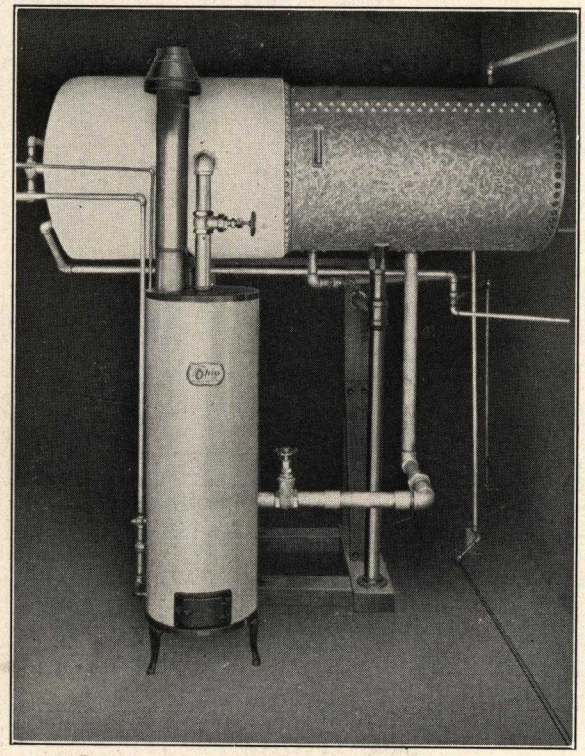
The above heating capacities (gallons per hour) are based on raising the temperature of the water from 50° to 180° F., using steam from 0° to 5 pounds gauge pressure. Heating capacities at various other pressures will be furnished if desired.

How to Specify

National Red Head Storage Heaters combine the numbers of the required storage and heating elements. Suppose you want to heat 1,500 gallons per hour with a storage capacity of approximately 900 gallons, by referring to above you would specify one National Red Head Heater NS-17-J.

THE OHIO HEATER COMPANY COLUMBUS, OHIO

General Office and Factory—1288 Holly Avenue



OHIO
Multiflue Storage Heater

Especially adapted for use in apartments, office buildings, theatres and garages, the OHIO Multiflue Storage Heater is built in four sizes which are able to supply hot water systems of 80 to 1000 gallons. OHIO Multiflue Heaters will not clog. They can easily be cleaned without shutting off the water. They are operated with snap action thermostat and may be used in connection with storage tanks in single or dual installations.

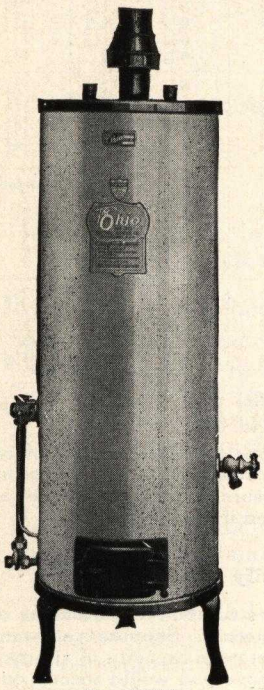
Specifications

No.	Flue Connections Inches	Gas Connections Inches	Circulating Pipes, Inches	List Price
00	4	½	1½	$157.50
100	4	½	1½	210.00
200	5	¾	2	262.50
300	5	¾	2½	328.00

Prices on systems complete, including tanks, tank supports, tank covers, thermostats, thermometers, but not including circulating pipes, upon application.

OHIO Side Arm Combination Heater

Complete in one unit and built to burn natural or manufactured gas as desired, the OHIO Side Arm Combination Heater is strictly high grade in every respect and built of the best obtainable materials throughout. Cop-R-Loy tank Rock Wool Insulation and is finished in attractive OHIO Red Lacquer. Circulating pipes are of brass. Furnished in four sizes which have been proved most popular. Safety pilot control standard equipment.



The OHIO

Specifications

Number	Capacity Gallons	List Price
31	30	$ 80.00
41	40	97.50
51	50	125.00
61	66	203.00



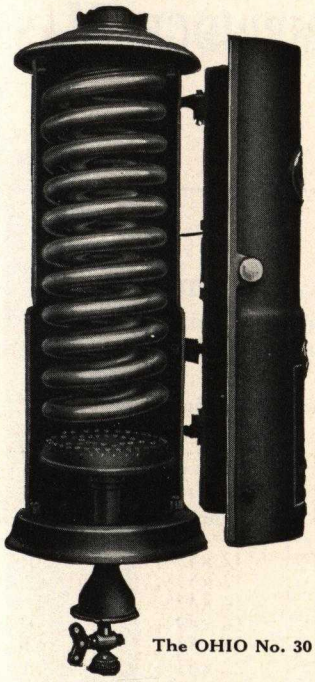
OHIO Side Arm

The OHIO

The OHIO Heater is of the center flue type. Has Cop-R-Loy steel tank Rock Wool Insulation and is sturdily built throughout. It is finished in Ohio Red lacquer, black japan trimmed. Snap action thermostat and safety pilot control standard equipment.

Specifications

No.	Capacity Gallons	Gas Connections Inches	Water Connections Inches	Flue Connections Inches	List Price	(Hard Water) List Price
15	15	⅜	¾	3	$50.00	Not Made
20	20	⅜	¾	3	55.00	$65.00
30	30	⅜	¾	3	70.00	80.00
40	40	⅜	¾	3	85.00	95.00
50	50	½	1	4	.....	135.00
65	65	½	1	4	.....	170.00
93	93	½	1	4	.....	200.00



The OHIO No. 30

OHIO Water Heaters

OHIO Double Copper Coil Heaters

The Ohio Heater has a flared cast iron shell which allows ample space around the burner for proper combustion; the upper part of the shell fits snugly around the coil directing the hot gases directly through them. The double coils are the best grade ¾-inch seamless 20-gauge copper tubing with red brass fittings. Has new type powerful burner with bottom gas connections. Drip cup attached to heater jacket and mixer locks through drip cup with bayonet catch. Heater is furnished in black japan. Heaters are furnished with union connections (when specified). Each coil is tested on 225 pounds cold water pressure.

Specifications

Number	Height Inches	Diameter Shell Inches	Crated Weight Pounds	Capacity Gallons	List Price
40 & 40U	18	7	32	30–40	$6.00
50 & 50U	22½	7	35	30–40	7.20
60 & 60U	23	7¼	40	40–52	8.00
70 & 70U	23	7¼	41	40–66	9.00

All valves on double coil heaters equipped with two orifice plugs for manufactured or natural gas.

OHIO Cast Iron Coil Heaters

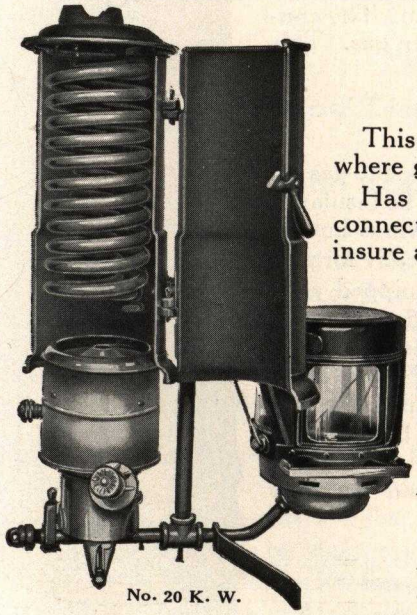


OHIO Cast Iron Coil Heater

The Ohio Cast Iron Coil Heaters are made of a series of staggered tapering discs cast in one piece, providing ample fire space at lower end. The waterway inside the coils is large (1¾ inches in diameter), smooth and free from pockets. Each coil is twice subjected to a 100 pounds cold water test. Jacket is close fitting, double walled, and lined with asbestos. By lifting the jacket the coil is accessible for cleaning. Made in two sizes: No. 9-10, 30-gallon tank; No. 14-16, 30 to 60-gallon tank. Natural gas only.

Specifications

No.		Length of Coil Inches	No. Discs in Coil	Height Inches	Diameter Shell Inches	Shipping Weight Pounds	List Price
9	Blue Jacket	18	5	26	7	31½	$ 9.00
10	Blue Enameled Jacket	18	5	26	7	31½	10.00
14	Black Jacket	22	6	30	7	40	15.00
16	Black Enameled Jacket	22	6	30	7	40	16.00



No. 20 K. W.

OHIO Kerosene Water Heater

This heater is adapted for use in suburban and country homes, where gas is not available. It is also convertible to gas.

Has a double coil of ½-inch tubing—pure copper. The lower connection is placed at the back and the upper one through the top of the heater to insure a strong, steady stream velocity.

The burner on the heating unit is the round wick type. It is easily and instantly lighted with a match—no generation required. The hot, blue flame makes no noise or smoke and can be regulated as desired. The fuel capacity is approximately 18 hours to a gallon with heater going full. The wick is of extra high quality—will last long and requires little attention. The burner produces perfect combustion thus effecting a great saving in fuel.

Specifications

No.	Length of Coil Inches	Height Inches	Extreme Width Inches	Weight Pounds	Capacity Gallons	List Price
20 K. W.	22 ft. 2 in.	27½	19½	44	30	$24.00

OHIO Gasoline Pressure Heater

Specifications

No.	Diameter Inches	Height Inches	Crated Weight Pounds	Capacity Gallons	List Price
29	7¼	23	45	40–52	$43.00

The OHIO Gasoline Pressure Heater has cast iron jacket, double copper coil, ¾-inch, 20-gauge, with blue flame burner. Heater is furnished with five-gallon pressure tank together with tubing and fittings.

RIVERSIDE BOILER WORKS, INC. CAMBRIDGE, MASS.

General Offices and Factory—50 Harvard Street

Founded 1889
Incorporated 1913

TRADE MARK RIVERSIDE REG. U.S. PAT. OFF.

New York Office:
11 West 42nd Street



20-Gallon All-Copper "Packo" Finish—Gold and Black

The "ALL-COPPER"
"Packo" Automatic Storage Systems

The "ALL-COPPER" "Packo" hot water storage system is built for the better class of homes. Only three connections are necessary upon installation: hot water, cold water and gas supply.

Equipment

Massachusetts Regulation "Riverside" Boilers, guaranteed 300-pound test and for maximum working pressure of 127½ pounds.

Positive snap-action thermostatic control and automatic safety pilot.

Gas dirt trap. Main gas shut-off valve.

Draft diverter. Pilot valve. Brass drain cock.

Outer shell of galvanized steel finished in an attractive color scheme—Gold and Black.

Boiler heavily insulated with Balsam-Wool. Needle regulating valve.

Double copper coil gas heater with "Non-Back-Fire" Burner.

All connections and piping for water are of copper or brass.

All "PACKOS" are now tapped on back ¾-inch I. P. S. for "Indirect Heaters."

Stand and legs of heavy cast iron.

"PACKOS" are well crated for shipment.

Packo Specifications

Capacity Gallons	Tank Size Diam. X Ht. Overall Inches	Weight Crated Pounds
20	12 X45¾	203
24	12 X53⅜	225
30	14 X49⅝	258
40	16 X49⅝	300
52	18 X52¼	520
66	22 X43½	660
82	22 X53⅛	820
100	24 X55⅛	925

For large requirements use two systems connected in multiple. This allows a cutting off of one system without interfering with the entire domestic water supply.

Upon request "Packos" are furnished with "Kopsteel" Inner Tanks.

All Packo Systems Have Automatic Safety Pilot

"Packo" Hot-Water Service means a full faucet flow of clean hot water from one or several faucets simultaneously, quickly and at any time—day or night! The water is heated and stored, meaning that hot water is always ready for instant use. As hot water is drawn, cold replaces it, lowering the temperature of the water. The Thermostat Control operated by the temperature of the water, automatically turns on the gas. The gas burns only until the incoming cold water is heated. The control then operates again, this time closing off the gas. This operation is repeated as the heater is used.

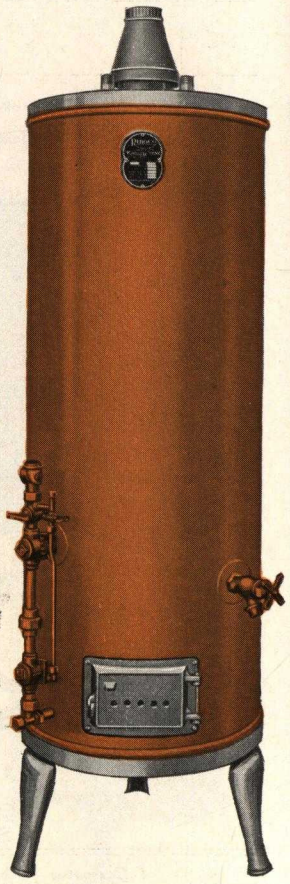
"Riboco" Automatic Storage Systems
Insulated External Flue Type

Riboco Hot Water Heater Storage System has latest refinements of hot water heaters. Very simple and priced very low.

Can be had with either the **"Riverside" 300-pound test Copper Storage Tank,** or a **"Riverside" 300-pound test "Kopsteel" Galvanized Tank.** Depends on the condition of the water which tank to use. "Kopsteel" is a special copper-bearing steel which defies corrosion remarkably well. **Both types of tanks are built to Massachusetts State regulations.**

The Thermostat is set at the temperature desired and will automatically keep tank full of piping hot water, turning the gas off and on as may be necessary. The insulated tank is really like a giant thermos bottle, storing and keeping hot water ready for use.

Riboco System regularly equipped with brass drain cock, main shut-off valve, gas supply dirt trap, adjustable gas regulating valve or snap action valve and down draft diverter. Automatic Safety Pilot Control can be and is recommended to be attached to system. With this device, the main gas supply is shut off at once should the pilot ever go out.



20-Gallon "Riboco" Copper Tank Finish—Gold and Black

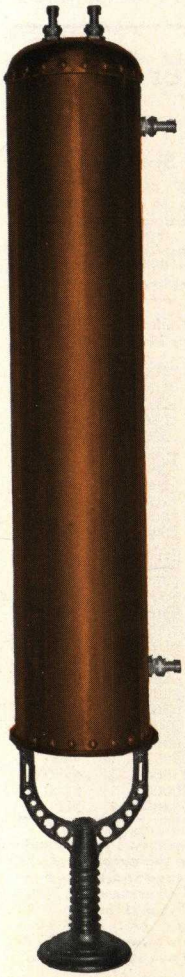
Specifications

No.	Approximate Capacity Gallons	Boiler Size Inches	Height Overall Inches	Diameter Inches	Weight Crated	
					Copper Pounds	Galvanized Pounds
20	20	14 x 32	55	18	209	228
30	30	16 x 39	61	21	310	340
45	45	20 x 40	61	24	370	400

Gas connections ½-inch. Water connections ¾-inch. Vent connection 3 inches on 20, 30-gallon sizes, 4 inches on 45-gallon system.

For Riverside Range Boilers, See Page 727

"Riverside" Massachusetts Regulation Copper Boilers



30-Gallon Riverside Type 20-G Copper Boiler

Two Types { "Riverside"—20-Year Type "20-G"
"Riboco"—Type "C"

"Riverside" 20-Year Copper Boilers are Built for Service and Safety

250 Pound Test—106¼ Pounds Working Pressure
and
300 Pound Test—127½ Pounds Working Pressure

Capacities and Sizes

Capacity Gallons	Size in Inches Diameter x Height	Capacity Gallons	Size in Inches Diameter x Height
25	11 x 60	80	20 x 60
30	12 x 60	100	22 x 60
40	14 x 60	125	24 x 60
50	16 x 60	150	24 x 72
60	18 x 60	...	.....

All heads are riveted and seams are brazed. Each "Riverside" Type 20-G Copper Boiler is shipped with a 20-Year Guarantee Certificate, which the house owner returns to us for record. This Certificate outlines the manner in which the boiler should be installed. If the boiler is defective, under the conditions, within the 20 years, a new boiler will be sent to the owner, price based on proportionate service rendered by the old boiler.

"Riboco"—Type "C"

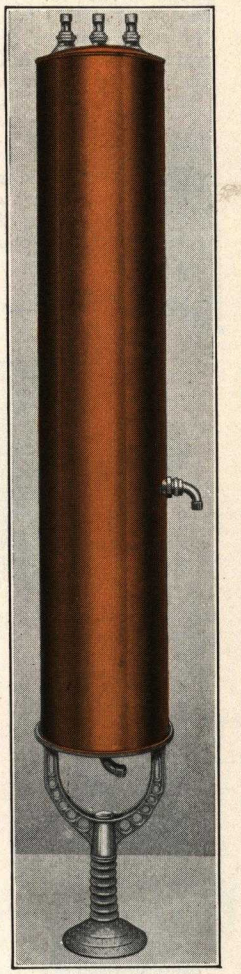
200 Pound Test—85 Pounds Working Pressure
and
250 Pound Test—106¼ Pounds Working Pressure

All boilers have riveted heads, riveted bottoms, with a brazed longitudinal seam. Do not compare these boilers with inferior copper boilers with soldered or so-called "floated" bottoms, that are not riveted. For safety and quality—at the price—there is no equal to the "Riboco" Copper Boiler.

"Riverside" Type 20-G and "Riboco" Copper Boilers are made in sizes according to list above and furnished and marked as follows:

"Riboco" {
- Massachusetts 200-lbs. test; Stamped 200-lbs. test, 85 -lbs. W. P. (Outside of Mass. can be used for 100-lbs. W. P.)
- Massachusetts 250-lbs. test; Stamped 250-lbs. test, 106¼-lbs. W. P. (Outside of Mass. can be used for 125-lbs. W. P.) } 20-Year Type
- Massachusetts 300-lbs. test; Stamped 300-lbs. test, 127½-lbs. W. P. (Outside of Mass. can be used for 150-lbs. W. P.) } 20-Year Type

"Hilowtap" or "Low-Tap" are supplied with couplings. State style desired. All "Riverside" Boilers are well crated for shipment. Couplings furnished with all 25, 30 and 40 gallon boilers. Female tappings on 50 gallon size and over.



"Riverside" Cistern Copper Boiler

THE PATTERSON-KELLEY COMPANY — NEW YORK, N. Y.

Established 1880

100 E. 40th Street

Branch Offices in Principal Cities

Water Heating Engineers and Manufacturers of Hot Water Heaters for 52 Years

Products

Patterson Hot Water Service Heaters: Storage and Instantaneous Types.

Also manufacturers of Converters for hot water heating systems; Swimming Pool Heaters; Preheaters or Condensation Coolers; Reclaimers for recovering heat from waste liquids; Feed Water Heaters and Purifiers; Fuel Oil Heaters; Kelley Hot Water Systems for Laundries.

Co-operative Engineering Service

Architects place themselves under no obligation by permitting Patterson-Kelley Engineers to submit suggestions regarding heaters required for specified purposes. We offer such service without charge and, when an installation is made in accordance with our recommendation, we positively guarantee that it will furnish **all of the hot water required, as hot as required and when required.**

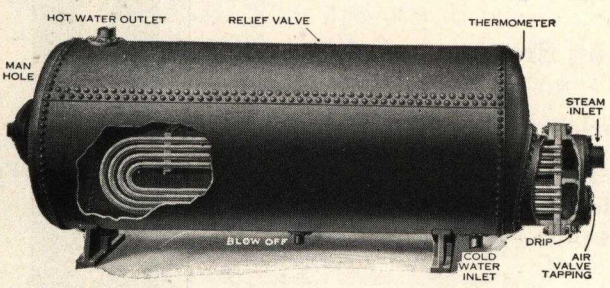
General Construction

The tubes in all Patterson Hot Water Heaters, Types A, B, C, D, E, F, G and L, are of heavy gauge, seamless drawn copper, tested to 1000-lb. hydrostatic pressure per sq. in. All tube heads are forged steel. The shells are either boiler plate or best quality dry sand castings of ample thickness. After assembling, each heater is tested to a hydrostatic pressure 50 per cent greater than the specified working pressure.

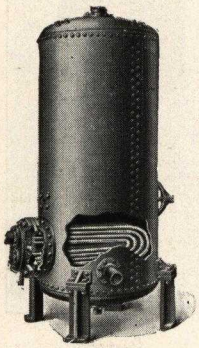
Guarantee

We guarantee the materials and workmanship of each heater to be first class in every respect, and any part proving defective within one year from date of shipment will be replaced without charge. We also guarantee each heater to heat its rated capacity of water.

Patterson Combined Hot Water Service and Storage Heaters



Horizontal Heater Type B



Vertical Heater Type L

Both the Type B, horizontal, and Type L, vertical, provide any combination of storage and heating capacities. They require only a small continuous supply of steam to heat and store sufficient water for peak load periods.

The tubes are "U" shaped seamless copper, both ends of each tube being expanded in a forged steel removable tube head.

The shells are of steel and, if desired, may be coated inside with rust resistant or **lined with copper** so that water comes in contact with no metal other than copper, thus combining the strength of steel with the durability of copper.

Patterson Combined Hot Water Service and Storage Heater Type B

Storage Capacities				Heating Capacities 40° F. to 180° F.—Steam at Atmospheric Pressure		
No.	Dimensions Inches	Capacity Gallons	Approx. Wt., Lbs.	No.	Gallons per Hour	Approx. Wt., Lbs.
1 S	24x 48	94	650	1 H	100	200
2 S	24x 60	118	750	2 H	150	215
3 S	24x 72	141	850	3 H	200	235
4 S	24x 84	164	950	4 H	250	255
5 S	30x 60	180	875	5 H	300	285
6 S	30x 72	215	1000	6 H	400	315
7 S	30x 84	255	1150	7 H	500	350
8 S	30x 96	285	1300	8 H	600	370
9 S	30x120	360	1500	9 H	700	400
10 S	36x 72	310	1250	10 H	800	425
11 S	36x 84	365	1400	11 H	1000	450
12 S	36x 96	415	1550	12 H	1250	500
13 S	36x108	475	1700	13 H	1500	550
14 S	36x120	500	1850	14 H	1750	600
15 S	36x144	640	2100	15 H	2000	700
16 S	42x 72	430	1500	16 H	2500	800
17 S	42x 84	500	1650	17 H	3000	900
18 S	42x 96	575	1800	18 H	3500	1050
19 S	42x108	650	1950	19 H	4000	1200
20 S	42x120	720	2200	20 H	4500	1350
21 S	42x144	860	2450	21 H	5000	1500
22 S	42x168	1000	2800	22 H	6000	1750
23 S	42x192	1155	3100	23 H	7500	2000
24 S	48x 96	750	2600	24 H	10000	3200
25 S	48x120	940	2925	25 H	12500	3800
26 S	48x144	1125	3350	26 H	15000	4500
27 S	48x168	1300	3840	27 H	20000	5100
28 S	48x192	1500	4200	28 H	25000	5800
29 S	54x120	1190	3500			
30 S	54x144	1425	3900			
31 S	54x168	1665	4300			
32 S	54x192	1900	4700			
33 S	60x120	1400	4300			
34 S	60x144	1700	4950			
35 S	60x168	2000	5600			
36 S	60x192	2240	6200			
37 S	72x174	3000	7000			
38 S	84x168	4000	8700			
39 S	96x168	5200	10000			
40 S	96x192	6000	11000			

Note—To specify Type B heaters, combine the numbers of the required storage and heating capacities. For example, "One Patterson Type B heater with No. 22S. and No. 17H." has 1000 gallon storage with 3000 gallon hourly heating capacity.

Suggested Specifications for Type B Heaters

Furnish and install, where shown on drawing, one Type B Patterson (if Indestructo Copper-lined, so state here) Combined Hot Water Heater and Storage Tank, with No. .... S storage section and No. .... H heating section.

The heating surface to consist of "U" shaped seamless copper tubes, both ends of each tube to be expanded in a forged steel tube head, and to be of sufficient capacity to heat not less than .... gallons of water per hour from an initial temperature of .... degrees to a final temperature of .... degrees when supplied with steam at .... pounds pressure.

The heater to be furnished with manhole, all necessary openings, tappings, and saddles for its support.

The water space to be tested for a working pressure of .... pounds per square inch and the steam space for a working pressure of .... pounds per square inch.

"Data Book for Architects' and Engineers' Use"

Send for this. It contains accurate capacity tables of the herein described and other types of Patterson Service Heaters and Generators.

Gallons of water per hour are given for each size, at various final temperatures, using steam at different pressures. Detailed dimensions are shown of all sizes; also capacities of Patterson Converters in square feet of radiation, etc.

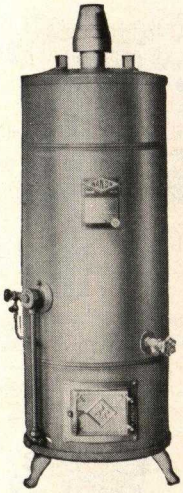
THE SANDS MANUFACTURING COMPANY CLEVELAND, OHIO

Main Office and Factory—5407 Sweeney Avenue

Branch Offices and Representatives:

Akron, Ohio, M. R. Emrich Co., 191 N. Portage Path.
Albuquerque, N. Mex., Lewis O. Kohlhaas, P. O. Box No. 723.
Atchison, Kans., Geo. E. Cooke Co., P. O. Box No. 235.
Avalon, Pa., H. E. Fullerton, 117 S. Birmingham Ave.
Boston, Mass., The Sands Heater Co., 114 Broad St.
Buffalo, N. Y., H. W. Duschak, 1360 Amherst St.
Chicago, Ill., J. H. Lehnen, 1510 Newberry Ave.
Chicago, Ill., Utilities Service Co., Room 1164, Peoples Gas Bldg.
Cincinnati, Ohio, The Neptune Sales Co., 908 Main St.
Cleveland, Ohio, E. J. Hungerford, 1100 E. 145th St.
Dallas, Texas, The Sands Heater Co., 211 S. Pearl St.
Detroit, Mich., A. D. Wright, 8745 Dumbarton Rd.
Hamilton, Ont., Can., B. D. Wait, 109 Eastbourne.
Houston, Texas, The Sands Heater Co., 3616 Main St.
Jersey City, N. J., J. M. Buday, 327 Ege Ave.
Los Angeles, Cal., Lewis Sands, 840 S. Serrano St.
Louisville, Ky., Home Service Corp., 1919 Griffith Ave.
Memphis, Tenn., G. M. Baird & Co., 564 Randolph Bldg.
New Orleans, La., Gas Appliance Co., 818 Carondelet St.
New York, N. Y., Earl K. Williams, 280 Madison Ave.
Philadelphia, Pa., Russell D. Knight Co., 2814 N. Broad St.
St. Louis, Mo., Haller Appliance Sales Co., Inc., 3038 Washington Blvd.
San Francisco, Cal., F. H. Maloney, 557 Market St.
Spokane, Wash., C. L. Featherstone, 123 S. Madison St.

Sands Water Heaters



Sands Line of Storage Heaters

All Sands Heaters are beautifully finished in French Green lacquer with silver trim and are exceptionally attractive at any point of installation.

The Heaters are very easily installed with only three connections: ½-inch Gas, ¾-inch water and 3-inch flue.

Every Heater is individually tested at the factory to 250 pounds hydrostatic pressure, 125 pounds working pressure.

Insulation of our masecrated rock wool.

Specially adaptable for hard water districts.

Patented grey iron baffle plates in the flue utilize every available unit of heat. Patented jet Burner. Our standard throttling thermostat used. Heavy tank, safety pilot, and brass cleanout plug furnished as standard equipment.

Number	Capacity Gallons	Crated Weight Pounds	Height Inches
15-F	15	185	46
20-F	20	230	52
30-F	30	270	64
40-F	40	310	64
50-F	50	505	65½
60-F	60	570	66
135-F	135	1075	66

Major Automatic Storage Heater

Burner—patented jet—no adjustment. Will not back fire.

Baffle plate—patented—distributes heat directly.

Thermostat—our own design—can be adjusted for desired temperature.

Tank—galvanized—standard weight.

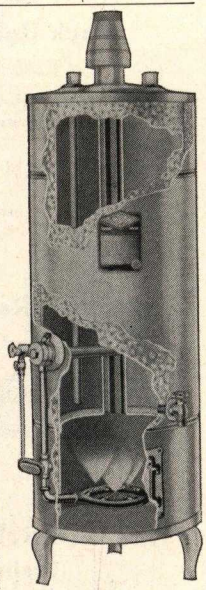
Drop Tube—Copper tube for cold water inlet.

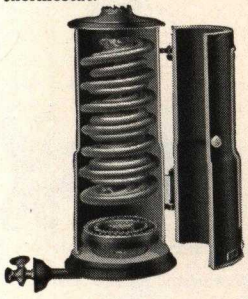
Door and Door Frame—Cast iron—accessible—neat and compact.

Number	Capacity	Shipping Weight Pounds	Height Inches
20	20	210	52
30	30	255	64
40	40	320	64

27,000 B. T. U. rating. A. G. A. approval. Will furnish 35 gallons hot water per hour. Practically same specifications as "F" series.

Only lighter, simpler and not as sturdy. This heater can be furnished with or without insulated jacket and thermostat.





Sands Triple Coil Heater No. 80

Designed for storage systems. Furnished with or without gauze burner.

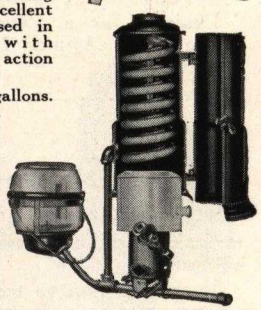
Heavy triple coil furnishes the heating element. An excellent heater to be used in conjunction with "Thermag" snap action thermostat.

Capacity, 100 gallons. Weight, 85 lbs.

Sands Wick Type Kerosene Heater

This heater has been designed to satisfy the requirements of localities having no gas. It can be connected into a gas heater with but little extra expense.

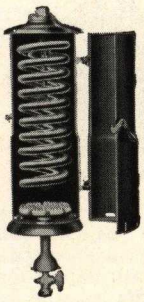
The heater has a Giant Wick Burner with a smokeless flame. It will burn 11 hours on one gallon of kerosene at full capacity. A gallon glass container is furnished with each heater.



Capacity Gallons	Diameter Tube Inches	Diameter Shell Inches	Weight Crated Pounds
30	¾	8	49

Sands Double Copper Coil Gas Heater

Cast Jacket



The specially constructed burner forces the intense heat directly into coils. The baffle plate distributes the heat evenly to all parts of the coil.

The jacket is flared out where heat is most intense. Can be used with Natural or Artificial gas.

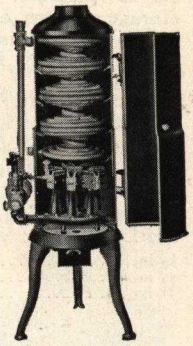
No.	Capacity Gallons	Tube Inches	Diam. Inches	Height Inches	Weight Pounds
115	30	¾	7½	13	27
115 G.U.	30	¾	7½	13	27
40	30	¾	7½	18	33
40 G.U.	30	¾	7½	18	37
25	30	¾	7½	22	38
25 G.U.	30	¾	7½	22	38
50 G.U.	30	¾	8¼	24	43
70 G.U.	40	¾	8¼	24	45

No. 40 G.U., 25 G.U., 50 G.U. and 70 G.U. furnished with union couplings. No. 115 for natural gas only. All heaters have combination base and drip pan, patented baffle, and non back firing burner.

Sands Automatic Heater Non-Thermostatic and Thermostatic

This heater has a Sands patented automatic burner. A Sands patented automatic valve and baffle plate. The valve is solid brass.

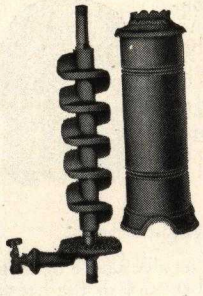
It has a combination drip pan and base, a large three-legged stand. It is all cast iron, fire japanned.



Number	Capacity per Minute	Weight Pounds
300	3	125
2½NT	2½	175
3NT	3	235
4NT	4	260
5NT	5	320
2½T	2½	182
3T	3	242
4T	4	291
5T	5	350
7T	7	520

NT Denotes Non-Thermostatic. T Denotes Thermostatic.

Augmore Heater



The patent step coil makes this heater especially suitable for hard water districts.

The jacket is double Russian iron or enamel, asbestos lined.

Has self-cleaning combination burner and mixer. Capacity, 30-40-gallon tank.

Number	Diameter Inches	Height Inches	Weight Pounds
9	7	27	35
10	7	27	35
11	7	27	43

The No. 9 has Russian iron jacket, No. 10 enameled, No. 11 cast.

"Sands Pressure Relief Valve"



Relieves the boiler of excessive temperature or excessive Pressure. Works while you sleep.

The Pressure Valve is set and sealed at our factory for any desired water pressure, guarding against tampering or changing of original setting.

Will Not Corrode—Absolutely Positive—Will Last a Lifetime

Established 1894

THE STACK HEATER COMPANY

Two Hundred and Fifty Stuart Street
Boston, Mass.

STACK
REG. TRADE MARK

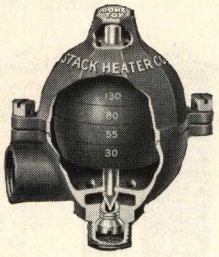
PRODUCTS

Dome Top Relief Valve

Approved by the Underwriters' Laboratories

The only Relief Valve of the vertical weight type that is built without washers. Constructed with Monel metal removable seat and Monel metal piston.

Constructed with 30 lb. weight cast integral with the piston and furnished with 3 additional removable weights so that the DOME TOP may be set at 30 lbs., 55 lbs., 80 lbs., 105 lbs. or 130 lbs. as required by simply adding or removing weights.



Recommended for use on range boilers, storage systems, open and closed hot water house-heating systems.

For hot water house-heating systems, take out all removable weights, leaving 30 lb. weight cast integral with piston.

½-inch I. P. S. ..... List Price $6.00

Lifdex Relief Valve

Approved by the Underwriters' Laboratories

The only diaphragm-type Relief Valve built with a lever.

Approved by the Underwriters and constructed according to the A. S. M. E. Code, the LIFDEX Relief Valve is designed to relieve excess pressure. Recommended for boilers, storage systems, etc.



The seat area is full pipe size.

All LIFDEX Relief Valves are set at our factory.

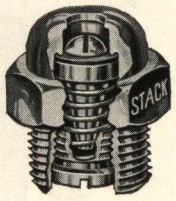
For hot water house-heating systems, the LIFDEX is set at 30 lbs. pressure. For other requirements, it should be set at 25 lbs. higher than the working pressure on the respective installation.

When ordering, be sure to state the pressure at which the LIFDEX Relief Valve is to be set.

½-inch I. P. S. ..... List Price $15.00
¾-inch I. P. S. ..... List Price 19.00
1-inch I. P. S. ..... List Price 21.00

Stack Vacuum Relief Valve

The Stack Vacuum Relief Valve is constructed to relieve vacuum by means of suction of air through a specially treated fibre seat held tight by the water pressure, thus preventing the boiler from collapsing.



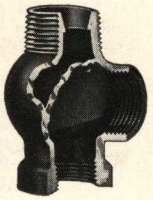
This suction occurs when the street main is drained either for repairs or by fire pumps.

½-inch I. P. S. ..... List Price $2.00
¾-inch F. T. ..... List Price 2.00

Stack Nonbipas Valve

The Nonbipas Valve adds greatly to the service value of every gas water heater and insures delivery of full service of the heater. Cold water cannot pass through the Nonbipas Valve via the heater. Stops condensation.

Hot water can be drawn from the faucet directly through the Nonbipas Valve, furnishing an instantaneous supply—the amount depending on the size of the heater. Cast from virgin metal and fabricated into a quality valve of bronze.



26 Standard Sizes

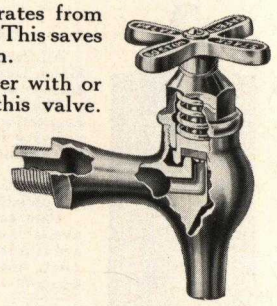
List Price $1.70

For special sizes machined to order—price furnished on application.

Stack Faucet Relief Valve

The Stack Faucet Relief Valve, designed to serve the dual purpose of a relief valve and hot water faucet, operates automatically when the pressure becomes too great. It is recommended for use on range boilers and storage heaters.

When the Stack Relief Valve operates from excessive pressure, it drips into a sink. This saves the cost of a separate drain connection.



Unauthorized persons cannot tamper with or change the pressure adjustment of this valve.

Stack Faucet Relief Valves should be set to relieve at 25 pounds higher than the water pressure at the point of installation.

When ordering, always state pressure at which the valve is to relieve. Otherwise, valves set at 125 pounds will be furnished.

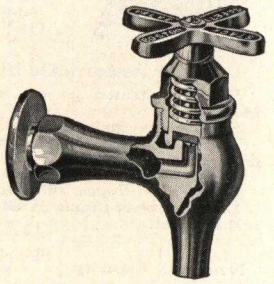
All Stack Relief Valves are highly polished and buffed, with the exception of the Drain Type, which is furnished rough. Nickel plating extra.

½-inch I. P. S. Male ..... List Price $6.00
¾-inch I. P. S. Male ..... List Price 8.00

Stack Relief Valve

F. F. Type

Designed as a Relief Valve and Sink Faucet. ½-inch I. P. S. Female Flange.

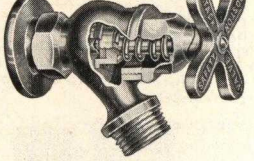


List Price $7.00

Stack Relief Valve

Tray Type

Designed as a Relief Valve and Laundry Tray Bibb. ½-inch I. P. S. Female Flange.

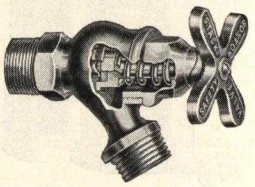


List Price $7.00

Stack Relief Valve

Drain Type

Designed as a Relief Valve and Drain Cock. ½-inch I. P. S. Male. Rough brass.



List Price $5.00

Stack Plumbers' Gauge

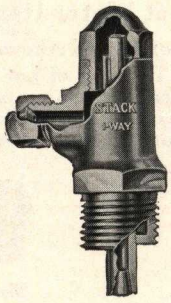
The Stack Plumbers' Gauge is of special construction and is a necessary part of every mechanic's equipment.



It enables him to test the pressure on the job whenever it may be necessary, as, for example, when he is installing relief valves, etc.

2½-inch Diameter ..... List Price $5.00

Stack 1-Way Relief Valve



The Stack 1-Way Relief Valve is constructed to relieve temperature.

The temperature is relieved through the melting of a fusible plug, shown in the cross-section. The fusible plug can be replaced within a few seconds by any one on the premises without removing the valve from the fixture.

This valve, recommended for domestic range boilers and storage systems, should be piped to a drain with ¼-inch O. D. copper tubing.

½-inch I. P. S. ..... List Price $3.00

Stack 2-Way Relief Valve



The Stack 2-Way Relief Valve is constructed to relieve pressure and vacuum.

The pressure is relieved in the usual manner: The valve operates automatically when the pressure becomes too great, draining just the right amount of water to reduce the pressure to within proper bounds, when it automatically closes.

The vacuum is relieved by suction of air through a specially treated fibre seat held tight by the water pressure, thus preventing the boiler from collapsing.

Such suction occurs when the street main is drained either for repairs or by fire pumps.

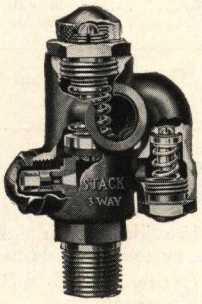
½-inch I. P. S. ..... List Price $3.50
¾-inch F. T. ..... List Price 3.50

Stack 3-Way Relief Valve

Approved by the Underwriters' Laboratories

The Stack 3-Way Relief Valve is constructed to relieve temperature, pressure, and vacuum: three distinct units, each operating independently.

The temperature is relieved through the melting of a fusible plug which can be seen in the cross section. This plug can be replaced within a few seconds by any one on the premises without removing the valve from the fixture.



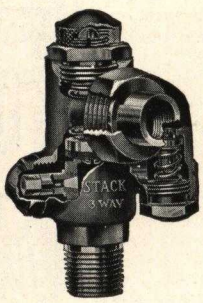
The pressure is relieved in the usual manner. The valve operates automatically when the pressure becomes too great, drains the right amount of water to reduce the pressure to within proper bounds, and then automatically closes.

The vacuum is held tight by the water pressure and is relieved by the suction of air. Thus it prevents the boiler from collapsing.

½-inch I. P. S. ..... List Price $5.00
¾-inch I. P. S. ..... List Price 8.00
¾-inch F. T. ..... List Price 5.00

Union 3-Way Relief Valve

Approved by the Underwriters' Laboratories



The Stack Union 3-Way Relief Valve is constructed with a ground joint union connection on the outport.

This valve is designed to relieve pressure, temperature, and vacuum. In construction it is exactly like the Stack 3-Way Relief Valve shown above.

½-inch I. P. S. ..... List Price $5.50
¾-inch F. T. ..... List Price 5.50

Nelson Relief Valve



The Nelson Relief Valve is designed to relieve pressure and is constructed with an exterior phosphor bronze spring which will not rust and is not affected by atmospheric conditions; therefore assures perfect functioning. Rubber washers are eliminated in this valve.

This valve may be adjusted by any mechanic in ten seconds to operate at any required pressure which may be found necessary on the job, from 1 pound to 175 pounds.

When the maximum pressure adjustment of this valve is reached, you will hear a click, thus eliminating any possibility of converting the valve into a plug.

Recommended for range boilers, tank in basement systems, closed plumbing systems, storage systems, pumps, etc. It operates automatically when the pressure becomes too great, drains the right amount of water to reduce the pressure to within proper bounds, and then automatically closes.

½-inch I. P. S. ..... List Price $ 4.50
¾-inch I. P. S. ..... List Price 9.00
1-inch I. P. S. ..... List Price 10.00

Nelson Lever Relief Valve



The Nelson Lever Relief Valve is constructed and designed exactly as the Nelson Relief Valve, illustrated and described above, except that it is made with a lever attachment so as to enable any one on the premises to test the valve when the occasion may arise.

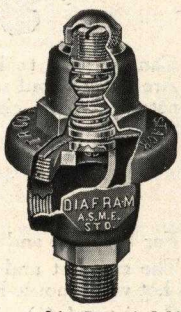
½-inch I. P. S. ..... List Price $ 5.50
¾-inch I. P. S. ..... List Price 9.50
1-inch I. P. S. ..... List Price 10.50

Stack Diafram Relief Valve

Approved by the Underwriters' Laboratories

The Diafram A S. M. E. Std. Relief Valve is designed to relieve pressure and is constructed according to the Code of The American Society of Mechanical Engineers and approved by the Underwriters' Laboratories and The National Board of Boiler and Pressure Vessel Inspectors.

The diaphragm is made of heat-resisting laminated phosphor bronze.



Recommended for hot water house-heating systems, range boilers, storage heaters, etc.

All Diafram Relief Valves are set at our factory.

For hot water house-heating systems, these valves are set at 30-pound water pressure.

For other requirements they should be set at 25 pounds higher than the working pressure on the respective installation.

When ordering, state the pressure at which the Diafram Relief Valve is to be set.

½-inch I. P. S. ..... List Price $ 5.50
¾-inch I. P. S. ..... List Price 15.00
1-inch I. P. S. ..... List Price 19.00

Stack Dual Relief Valve

Approved by the Underwriters' Laboratories



The Stack Dual Relief Valve is designed to relieve temperature and pressure. It is recommended for range boilers and storage heaters.

The temperature is relieved through the melting of the fusible plug which can be replaced within a few seconds by any one on the premises without removing the valve from the fixture.

The pressure is relieved in the usual manner and operates automatically.

½-inch I. P. S. ..... List Price $4.00
¾-inch I. P. S. ..... List Price 8.00
¾-inch F. T. ..... List Price 4.00

See Following Page.

Stack Supreme Indirect Water Heaters

The Stack Heater Company of Boston has developed several different types of indirect water heaters to cover all hot water heating requirements, from the smallest cottage to the largest industrial plant. While these heaters differ somewhat is construction, the principle involved in each case is the same. They may be used independently or with storage tanks. The heating medium may be hot water, vapor or steam. Stack Supreme Heaters have no air pockets. The flow from the house heater is forced against the entire outer surface of the copper tubes.

Stack Supreme Heaters are absolutely safe. The service water is never overheated because circulation stops when the temperature of the service water approaches that of the heating medium.

Stack Supreme Heaters can be installed on steam or vapor house heaters and keep the storage tank full of piping hot water at practically no cost. Both heating and service waters enter and leave the heater in the position of greatest efficiency and circulate throughout the entire heater. The two waters never mix.

Our Engineering Department is always at the disposal of the architect, engineer, contractor or plumber without obligation. We shall be glad to study your special problems and submit recommendations.

The heater number indicates gallons delivered in 3 hours, 100° rise, connected 3 inches below water line, steam boiler water at 210°.

Connected Below Water Line

The Stack Supreme Heater connected below the boiler water line gives a constant supply of hot water, night and day, whether the fires are banked or wide open.

Connected Above Water Line

Delivery of hot water by a Stack Supreme Heater using live steam (which can also be connected above the water line) is twice that of the same size heater using boiling water from below the water line of a steam heating boiler.



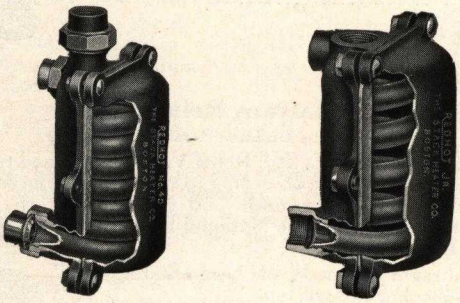
Sizes, Weights and List Prices

Heater No. and Storage Tank Size	Connections, Inches		Sections Tapped		Over-all Inches		Shipping Weight Pounds	List Price
	Shell	Water	Size of Tapping Inches	Number of Sections	Length	Diam.		
100	(2) 1¼	1	1¼	1	15¼	6	19	$21.00
160	(2) 1½	1½	1¼	2	15¾	7¼	29	33.00
250	(4) 1½	1½	1¼	4	24	8	56	66.00
400	(4) 2	2	1½	4	25½	11	112	99.00
600	(4) 2	2	1½	4–6	34½	11	145	147.00
1000	(4) 3	3	1½	6–8	38	13½	233	267.00
1200	(4) 3	3	1½	6–10	38	13½	258	320.00
1400	(4) 3	3	1½	6–12	38	13½	290	373.00

Caution: Many tanks are installed too small. Heaters should always be ordered to correspond with work required and not size of tank. Also make liberal allowance if circulating system is used.

Redhot Indirect Water Heaters

REDHOT Indirect Water Heaters, connected below the water line of any steam or vapor-heating boiler, will furnish an abundant supply of hot water at practically no cost.



Can be used to heat water or other liquids with live steam.

Are constructed with heavy copper spiral coil which assures a constant and free circulation of hot water.

Nos. 40, 60, 120 and 200 are equipped with ground joint unions (having brass tail pieces) for steam and water connections, thus permitting a complete installation without additional unions.

Can be cleaned easily, by removing the bolts and the plate, without disturbing any pipe connections to the REDHOT.

Sizes, Capacities and List Prices

Number	Capacity, Gallons*		Connections		List Price
	Below Water Line	With Live Steam	Shell Inches	Water Inches	
Jr.	30	50	1	¾	$5.00
40	40	80	1	¾	13.50
60	50– 60	120	1	¾	17.00
120	80–120	200	1¼	1	33.00
200	160–200	400	2	1¼	51.00

*Ratings based on 100-degree temperature rise in three hours.

Stack Tank-N-Basement System

For Hot Water Heating Jobs

For 1, 2, 3, 4 and 5-story buildings.

The simplest and safest method of insuring proper circulation on hot water house-heating systems.

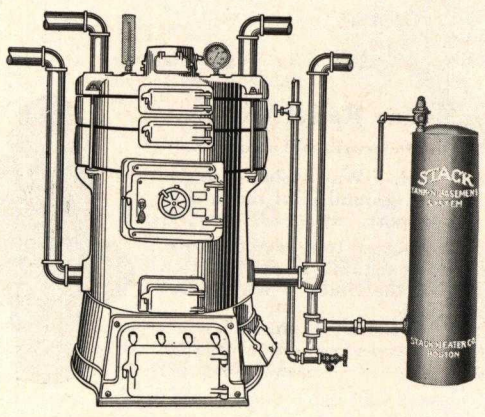
Consists of (1) air-tight TANK; (2) RELIEF VALVE constructed according to A. S. M. E. Std. and approved by the Underwriters' Laboratories; (3) THERMOMETER; (4) GAUGE constructed according to A. S. M. E. Std.; (5) DRAIN COCK.

Sizes, Capacities and List Prices

System Number	Capacity Sq. Ft. Radiation	List Price
18	Up to 500 ft.	$30.00
24	500 to 800 ft.	32.00
30	800 to 1,200 ft.	36.00
35	1,200 to 1,600 ft.	42.00
40	1,600 to 2,000 ft.	56.00
60	2,000 to 3,000 ft.	68.00
80	3,000 to 4,000 ft.	90.00
100	4,000 to 5,000 ft.	106.00

Provides an air cushion to absorb expansion, thus protecting the system from damage due to excessive pressure.

Entire TANK-N-BASEMENT System shipped complete in one package.



Stack Gas Water Heaters



Stack Gas Water Heaters are constructed on lines and principles radically different from those of any other gas water heater.

There is more than three times the exposed heating surface in the Stack coil than in the usual spiral coil heater. The 5/16-inch copper tubing used in the Stack has a 20 to 1 heating surface, while the 3/4-inch tubing used in other heaters has only a 6 to 1 heating surface.

The cold water enters at the bottom and is then divided into many thin streams. Each tube of water is exposed directly to the full strength of the flame.

Instead of traveling through a long spiral coil, the water rises in direct upward streams. When it reaches the top, it is scalding hot.

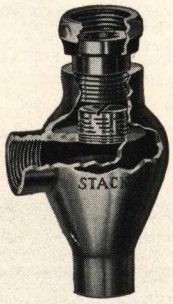
Stack Gas Water Heaters are built for RESULTS, and will deliver the greatest amount of hot water for every foot of gas consumed.

Sizes, Capacities and List Prices

Size	Boiler Capacity	Connections, Inches		Cu. Ft. Gas per Hour	Weight Pounds	List Price
		Water	Gas			
No. 1	30	3/4	3/8	40—50	32	$23.00
No. 2	40	3/4	3/8	50—60	35	24.25
No. 3	60	3/4	3/8	70—80	40	37.50
No. 6	100	1	1/2	110—120	60	75.00

Gauze burner for thermostat control, $3.00 extra.
Pilot light complete, $2.60.
All heaters drilled and tapped for pilot light.

Stack Instantaneous Steam Water Mixer



The Stack Instantaneous Steam Water Mixer can be used wherever there is cold water and live steam available, and is suitable for any combination of live steam and water pressure.

It provides for a wide range of water temperatures from cold to boiling in a few seconds at one faucet. It has been successfully used in many installations and has been adopted as standard in the laboratories of some of the largest universities in the country.

This Mixer is recommended for laboratories, factories, laundries, restaurants, boiler rooms, etc.

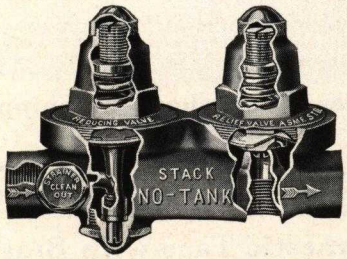
Sizes and List Prices

Water Connection	Steam Connection	List Price
1/2-in. Iron Size	1/4-in. I. P. S.	$14.00
1/2-in. Iron Size	3/8-in. I. P. S.	16.00
Std. Hose Bibb	1/4-in. I. P. S.	14.00
Std. Hose Bibb	3/8-in. I. P. S.	16.00

Stack NO-TANK

Approved by the Underwriters' Laboratories

For Hot Water House-Heating Systems



Approved by the Underwriters' Laboratories and listed as standard for hot water house-heating systems, the Stack NO-TANK does away with the installation of an expansion tank, thus simplifying and reducing the cost on any hot water heating layout.

The Stack NO-TANK, compact and efficient, consists of a Strainer, Reducing Valve and Relief Valve.

STRAINER: A separate unit which can be removed independently for cleaning purposes. Prevents dirt, grit and foreign matter from lodging on the valve seats, thus insuring perfect functioning of the NO-TANK at all times.

REDUCING VALVE: Constructed with a removable seat. The diaphragm in this unit is made of Navy P. G. stock. Is adjusted to deliver 10 to 12 pounds pressure—sufficient to force the water to the highest point in the system on the average 1 and 2-story installation. For 3-story buildings, a slight readjustment should be made.

RELIEF VALVE: Constructed according to A. S. M. E. Standard, and approved by the National Board of Boiler and Pressure Vessel Inspectors. The diaphragm embodied in this unit is made of heat-resisting laminated phosphor bronze.

The Stack NO-TANK operates automatically. When the water is heated in the boiler and the pressure increases to approximately 30 pounds, the Relief Valve unit operates automatically, drains just the right amount of water to reduce the pressure to within proper bounds and then automatically closes.

The Reducing Valve unit then automatically opens and permits sufficient fresh water to enter the system to build up and maintain the original set pressure. The cycle of operation is then completed by the closing of the valve.

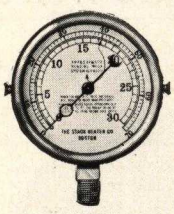
Such automatic action speeds up circulation, reduces air pockets and raises the boiling point.

The Stack NO-TANK is furnished in half-inch iron pipe size, suitable for all installations.

List Price.....$15.00

Complete installing directions packed with each NO-TANK.

Stack NO-TANK Gauge



For best results, we recommend the installation of a Stack NO-TANK Gauge with every Stack system.

List Price.....$2.00

TACO HEATERS, INC. NEW YORK, N. Y.

General Offices—342 Madison Avenue

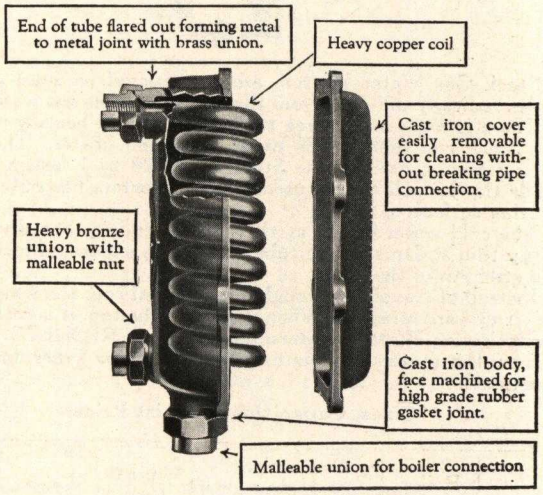
TACO

Water Heaters

Capacities, Dimensions and Shipping Weights of Taco Heaters

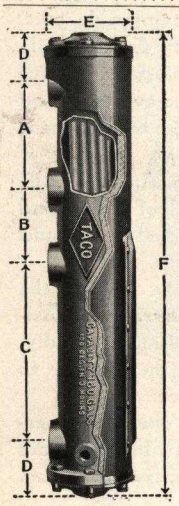
*TACO ABBOTT SYSTEM—Taco used for automatic year round domestic hot water supply. Boiler, oil-fired.

Note—For oil-fired installations requiring more than 200 gallons storage capacity and when conditions permit boiler water temperature to be maintained at 212° coal ratings apply.



Domestic Taco with Brass Unions

Size	Without Union 00	With Union 0	30	1	1-A	2	2-A	3	3-A
Capacity, gallons, 100° rise 3 hours									
Below water line, coal fire	30	30	30–40	40–60	60–80	80–120	120–160	160–200	200–240
*Below water line, oil fire	.....	.....	.....	.....	30–40	40–60	60–80	80–100	100–120
Below water line, water radiation	15	15	20	30	45	60	90	120	150
Live steam	40	40	50	75	115	150	225	300	370
Height, inches	8½	8½	11	13	14	16½	19	21½	26
Diameter, inches	5½	5½	5½	5½	7½	7½	9	9	9
Tank conn., inches	¾	¾	¾	¾	1	1	1	1¼	1¼
Boiler conn., inches	1	1	1	1	1¼	1¼	1½	2	2
Shipping weight, lbs.	10	10	12	14	22	25	50	65	80
List Price	$10.00	$10.00	$15.00	$20.00	$25.00	$30.00	$40.00	$50.00	$60.00



Super Taco

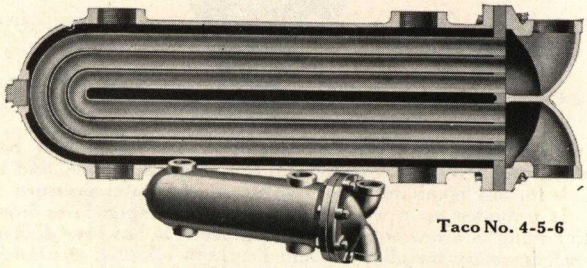
Size	7	8	9	10	12	15	20	25	35	50	75	100
Capacity, gallons, 100° rise 3 hours												
Below water line, coal fire	160	220	320	450	600	800	1000	1250	1750	2500	3750	5000
*Below water line, oil fire	80	110	160	225	300	400	500	625	825	1250	1875	2500
A	8	10	8	10	10	12	7½	8½	8½	12	12	12
B	5½	7½	5	7	6½	9	8	11½	11½	18	18	18
C	13½	17½	13	17	16½	21	15½	20	20	30	30	29
D	3¾	3¾	5	5	6	6	7	7	7½	8½	10½	12½
E	6¼	6¼	7½	7½	9¼	9¼	11¾	11¾	14¼	14¼	19	21
F	34½	42½	36	44	45	54	45	54	55	77	81	84
Tank conn., inches	1½	1½	2	2	2	2	2½	2½	4	4	5	6
Boiler conn., inches	2	2	2½	2½	3	3	4	4	4	5	5	6
Shipping weight, lbs.	70	80	100	120	160	200	280	350	500	685	1050	1250
List Price	$55.00	$70.00	$90.00	$110.00	$150.00	$190.00	$270.00	$330.00	$470.00	$670.00	$1000.00	$1300.00

Jackets Extra

Size	7	8	9	10	12	15	20	25	35	50	75	100
List Price	$20.00	$24.00	$28.00	$32.00	$36.00	$40.00	$44.00	$48.00	$52.00	$56.00	$60.00	$64.00

Taco No. 4, 5, 6

Size	4	5	6
Capacity, gallons, 100° rise in 3 hours			
Below water line, coal fire	320	640	960
*Below water line, oil fire	160	320	480
Below water line, water radiation	250	500	800
Live Steam	600	1200	1800
Length, inches	28½	41	43¾
Diameter, inches	10	12	13½
Tank connections, inches	2	2½	3
Boiler connections, inches	2	2½	3
Shipping weight, lbs.	100	190	280
List Price	$100.00	$200.00	$300.00



Taco No. 4-5-6



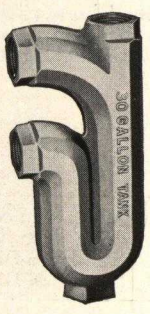
Universal

Universal Taco

Size	6–9–30 Iron	6–9–60 Iron	6–9–30 Brass	6–9–60 Brass
Capacity, gallons	30	60	30	60
Height, inches	10½	10½	10½	10½
Width, inches	6	11½	6	11½
Shipping weight, lbs.	10	17	10	17
List Price	$6.40	$11.20	$22.00	$38.50

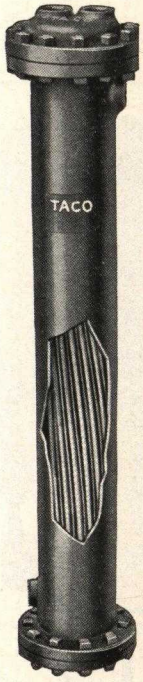
Taco Fire Pot Generators

Size	121 Iron	122 Iron	121 Galv.	122 Galv.	121 Brass	122 Brass
Capacity, gallons	30	40	30	40	30	40
Height, inches	7½	8	7½	8	7½	8
Width, inches	3½	4	3½	4	3½	4
Shipping weight, lbs.	4	7	4	7	4	7
List Price	$2.50	$4.00	$3.50	$5.50	$6.00	$9.50



Factory Shipment Items

Taco Oil Preheaters

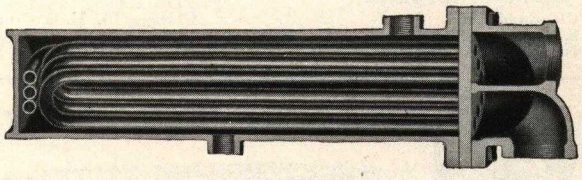


Type S

Data on Taco Oil Preheaters, Type U and Type S

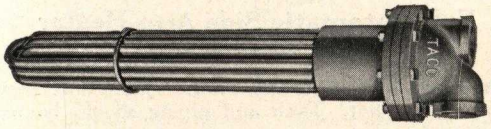
Type of Taco Oil Preheater	Capacities in Gallons per Hour: Below Water Line Boiler Steaming, Temperature Rise 90° to 150° F.	Heater on Steam with Gauge Pressure of 2 Lbs., Temperature Rise 80° to 180° F.	25 Lbs., 80° to 180° F.	50 Lbs., 100° to 200° F.	100 Lbs., 100° to 250° F.	200 Lbs., 100° to 250° F.	Approximate Shipping Weight, Lbs.	List Price
U-4	25	25	42	60	50	Built for Max.	96	$116.00
U-5	50	50	85	120	100	Oper. Pres. of	192	233.00
U-6	75	75	136	190	160	125 Lbs. Only	265	350.00
U-8-36	75	75	136	190	160	280	330	378.00
U-8-48	100	100	182	250	215	380	450	420.00
U-8-60	125	125	225	315	265	470	530	462.00
U-8-72	150	150	275	380	320	565	620	504.00
U-10-36	125	125	225	315	265	470	560	567.00
U-10-48	170	170	300	420	355	625	650	630.00
U-10-60	210	210	375	520	450	780	740	693.00
U-10-72	250	250	450	630	530	935	830	756.00
U-12-48	250	250	450	630	530	930	850	875.00
U-12-60	315	315	565	780	665	1170	950	967.00
U-12-72	375	375	680	940	800	1400	1050	1060.00
U-12-84	440	440	790	1100	930	1640	1150	1160.00
S-6-48	45	45	80	115	95	170	240	344.00
S-6-60	58	58	100	145	120	215	280	391.00
S-6-72	70	70	125	175	150	260	320	443.00
S-8-48	90	90	160	225	190	340	480	548.00
S-8-60	115	115	200	280	240	415	550	618.00
S-8-72	140	140	250	350	300	520	610	694.00
S-10-48	154	154	275	380	325	570	650	816.00
S-10-60	192	192	345	480	480	715	720	898.00
S-10-72	230	230	415	575	500	860	800	980.00
S-10-84	268	268	485	670	570	1000	880	1060.00

Taco Converters



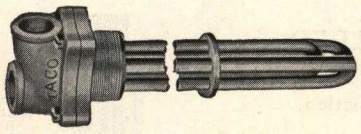
Type of Converter	Capacities of Converters in Square Feet Hot Water Radiation: Heater below Water Line with Boiler Steaming at 212° F.	Heater on Steam Steam Pressure Lbs. Gauge 0	2	5	10	15	20	50	Shipping Weight, Lbs.	List Price
UC-4-24	96	150	180	225	285	315	375	570	80	$85.00
UC-4-36	144	225	275	335	430	470	560	850	90	91.00
UC-4-48	192	300	360	450	570	630	750	1140	100	97.00
UC-4-60	240	375	450	560	710	790	940	1430	110	103.00
UC-4-72	288	450	540	675	855	950	1120	1710	120	109.00
UC-7-24	280	450	500	670	850	940	1120	1700	170	156.00
UC-7-36	430	675	810	1000	1280	1420	1700	2570	190	170.00
UC-7-48	575	900	1080	1350	1710	1890	2250	3420	210	184.00
UC-7-60	720	1125	1350	1690	2140	2370	2830	4300	240	198.00
UC-7-72	865	1350	1630	2020	2570	2840	3400	5140	250	212.00
UC-10-36	800	1270	1500	1900	2400	2680	3200	4850	320	260.00
UC-10-48	1050	1650	1980	2470	3130	3480	4140	6300	350	284.00
UC-10-60	1340	2100	2500	3150	4000	4400	5250	8000	380	318.00
UC-10-72	1630	2550	3050	3800	4850	5360	6400	9700	410	352.00
UC-10-84	1920	3000	3600	4500	5700	6300	7500	11400	440	386.00
UC-14-36	1900	3000	3600	4500	5700	6300	7500	11400	480	505.00
UC-14-48	2550	4000	4800	6000	7600	8400	10000	15200	560	560.00
UC-14-60	3200	5000	6000	7500	9500	10500	12500	19000	640	615.00
UC-14-72	3800	6000	7200	9000	11400	12600	15000	22800	720	690.00
UC-14-84	4500	7000	8400	10500	13300	14700	17500	26600	800	770.00
UC-14-96	5100	8000	9600	12000	15200	16800	20000	30400	900	850.00

Taco Tank Heating Unit



Taco Size	Capacity Using Live Steam at 0 lbs. Pressure: Usual Size of Storage Tank Gallons Heated 50° to 180°: One Hour	Three Hours	Shipping Weight: Heating Unit with Head Lbs.	List Price: Heating Unit with Head and Steel Collar
4-24	60	180	50	$ 75.00
4-36	90	270	55	81.00
4-48	120	360	60	87.00
4-60	150	450	65	93.00
4-72	180	540	70	99.00
4-84	210	630	75	105.00
7-36	270	810	115	155.00
7-48	360	1080	125	167.00
7-60	450	1350	135	179.00
7-72	540	1620	145	191.00
7-84	630	1890	155	203.00
10-48	660	1980	220	260.00
10-60	840	2520	245	290.00
10-72	1020	3060	265	320.00
10-84	1200	3600	285	350.00
10-96	1380	4140	310	380.00
14-48	1600	4800	530	510.00
14-60	2000	6000	570	560.00
14-72	2400	7200	610	630.00
14-84	2800	8400	650	700.00
14-96	3200	9600	690	770.00

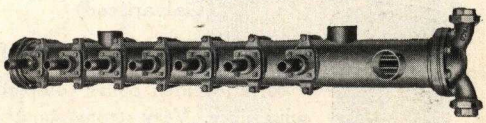
Biltin Taco



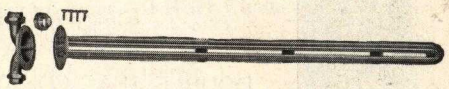
Series A and D
Series G Clamps against the Face of the Boiler

Taco Size	Capacity Gallons Heated 50° to 150° in 3 Hours: Firing Intermittent	Continuous	Shipping Weight Lbs.	List Price
AT-30	80	125	19	$ 61.00
AT-42	115	175	22	67.00
AT-54	140	215	25	73.00
AT-66	160	240	28	79.00
DT-30	100	150	27	64.00
DT-42	140	210	31	70.00
DT-54	180	270	35	76.00
DT-66	220	330	39	84.00
DT-78	260	390	43	92.00
DT-90	280	420	47	100.00
GT-54	225	345	43	85.00
GT-66	275	415	48	95.00
GT-78	320	485	53	105.00
GT-90	365	555	58	115.00
GT-104	405	615	63	125.00
GT-114	440	665	68	135.00

Header Taco



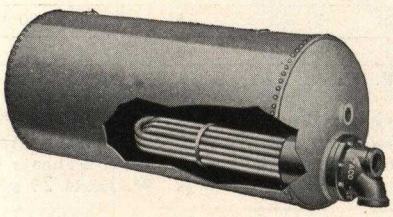
Header Taco



Header Taco Coil

Header Taco	Capacity 50° to 150° F. in 3 Hours, Boiler Water Temp. 180° F.	Shipping Weight, Lbs.	List Price
HT-436	100	85	$220.00
HT-448	135	115	250.00
HT-460	165	145	280.00
HT-472	200	180	310.00
HT-536	180	150	350.00
HT-548	240	195	385.00
HT-560	300	240	420.00
HT-572	360	285	455.00
HT-584	420	330	490.00
HT-636	320	195	450.00
HT-648	420	245	495.00
HT-660	520	295	540.00
HT-672	620	345	585.00
HT-684	720	410	630.00
HT-696	820	470	675.00

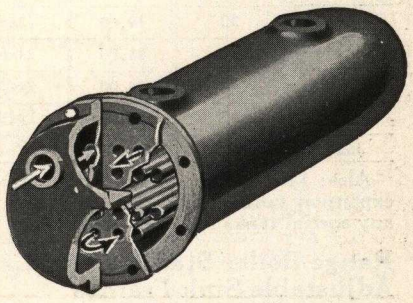
Taco Tanks



Tank Size, Gallon Cap.	Shipping Weight, Lbs.	List Price
36	160	$112.00
85	290	168.00
140	425	224.00
220	725	336.00

Instant Taco

Instant Taco Size	Shipping Weight, Lbs.	List Price
4	100	$100.00
5	190	200.00
6	280	300.00



All described in Taco 1932 Catalog F.
Copy sent on request.

D. D. WESSELS & SONS CO. DETROIT, MICH.

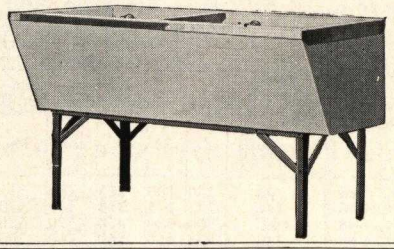
1625 Euclid Avenue, East

BRANCH FACTORIES
Cleveland, Ohio.
Kansas City, Kansas
New Orleans, Louisiana

SALES OFFICES
Chicago, Ill., H. E. Crum, Jr., 2615 Blaine Place
Kansas City, Kan., W. B. Warren, 50 Kansas Ave.
New Orleans, La., F. F. Tranchina, 840 Tchoupitoulas St.
Philadelphia, Pa., C. W. Cromb, Philadelphia Bourse.
New York, N. Y., Cowan Sales Co., 30 Church St.

MEMBER CONCRETE LAUNDRY TRAY INSTITUTE

Concrete Laundry Trays



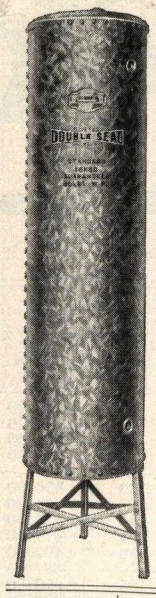
Round Corners

Rubber plugs and gland furnished. Stand Extra.

Low Back No.	Section	Length Inches	Width Inches	Depth Inches	Weight Pounds	List Price	6-In. Back No.	Weight Pounds	List Price
2	1	25	25	16	175	$13.00	102	175	$15.50
3	1	27	25	16	200	14.00	.....	.....	.....
4	1	30	25	16	225	15.00	.....	.....	.....
6	2	48	25	16	350	20.00	106	400	28.00
7	2	54	25	16	375	23.00	107	425	33.00
8	2	60	25	16	400	26.00	108	475	38.00
10	3	72	25	16	550	32.00	110	600	44.00

Wessels Range Boilers

(Galvanized)



WESSELS WELDED

An all-welded boiler completely fused into one solid piece. Very strong construction.

RIVETED DOUBLE SEAL AND WELDED

DOUBLE SEAL CONSTRUCTION. Riveted for guaranteed strength. Welded for tightness.

STAR-NACO

A Cop-R-Loy steel boiler built heavier than ordinary grades to give years of extra service.

Vertical range boilers tapped 1-inch, two in head, two in shell, one in bottom.

Horizontal boilers tapped 1-inch, two in top, one in bottom, one in each side.

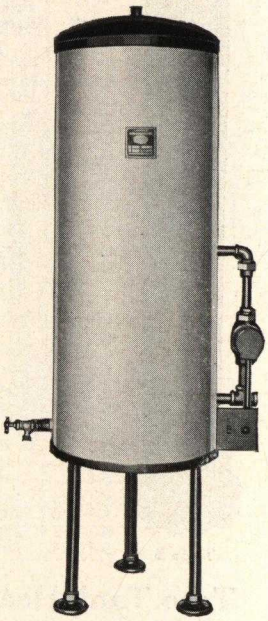
Size Inches	Capacity Gallons	List Price	Size Inches	Capacity Gallons	List Price
12x36	18	$14.50	18x60	66	$38.00
12x48	24	15.75	20x60	82	45.50
12x60	30	19.00	22x60	100	63.50
14x48	32	21.00	24x60	120	72.50
14x60	40	24.00	24x72	144	103.00
16x48	42	26.00	24x96	192	132.00
16x60	52	31.00	.....	.....	.....

Also: Hot water storage tanks, hydro-pneumatic tanks, vertical expansion tanks, horizontal expansion tanks, barber boilers and any special tanks in above sizes.

Range Boiler Stands
Adjustable Sink Frames
Laundry Tray Frames
Sink Brackets

Wessels Electric Water Heaters

Operated entirely by electricity. Has a Wessels Double Extra Heavy Welded Tank. Immersion type heating element easily removable. Air type thermostat. Finished in grey enamel, trimmed in green. Models for every requirement.



Full Automatic Tank Storage Models

Thermostatic Control

Hot water is always available stored in a doubly insulated tank.

Model	Gal.	K. W.	Weight Lbs.	List Price
A	20	3	265	$140.00
A	30	3	350	170.00
A	42	3	500	215.00
A	42	6	550	240.00
A	66	6	820	260.00
A	82	6	940	300.00

F.O.B. Detroit. Voltage must be specified.



Full Automatic Side Arm Heater

Thermostatic Control

Can be attached to any tank. Thermostat keeps water always hot. Tank and piping should be well insulated.

Model	K. W.	Weight, Lbs.	List Price
A	3	85	$93.00

F.O.B. Detroit. Voltage must be specified.

Semi-Automatic Side Arm Heater

Time Clock Control

Can be attached to any tank. Controlled by time clock located anywhere in the home. Set the clock to start the heater for any length of time. It shuts itself off.



Model	K. W.	Weight, Lbs.	List Price
T	3	80	$75.00
T	5	80	83.00

F.O.B. Detroit. Voltage must be specified.



Manual Side Arm Heater

Snap Switch Control

Can be attached to any tank. Controlled by a snap switch located anywhere in the home.

Model	K. W.	Weight, Lbs.	List Price
M	3	75	$38.00
M	5	75	43.00

F.O.B. Detroit. Voltage must be specified.

Electric Heating Capacities: Wessels heaters raise 4 gallons of water 100° over the inflow temperature per K. W. per hour. At a four cent rate the cost is one cent per gallon. The 3 K. W. heats 12 gallons; the 5 K. W. heats 20 gallons; the 6 K. W. heats 24 gallons of water 100° per hour.

WHITE MANUFACTURING COMPANY NEWARK, N. J.

General Office and Factory—93-107 Lafayette Street

"BURT PRODUCTS"



Burt Indirect Water Heaters

All Burt Heaters are equipped with brass union connections, on the tank side, excepting Nos. 4 and 5, on which the coils are brazed onto heavy brass connections. Burt Heaters are thoroly tested and guaranteed.

Specifications

Number	30	1	60	100	120	3	200	4	5
Capacity	30	40–52	66–82	80–100	120	140–160	200	250–300	350–400
Tank Con., inches	¾	¾	¾	1	1	1	1¼	1½	1½
Boiler Con., inches	1	1	1	1¼	1¼	1½	2	2	2
Length, inches	8½	10¼	12	14	17	21	17	22	22
Diameter, inches	5½	6	6¼	6¼	8	8	10½	13	13
Weight, pounds	14	17½	20	25	38	47	75	108	115

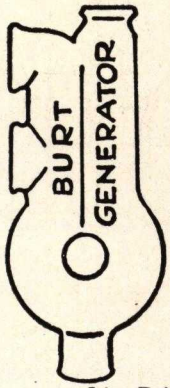
For oil burner use, choose Burt Heater which has at least twice the capacity of the storage tank.

Burt Generators

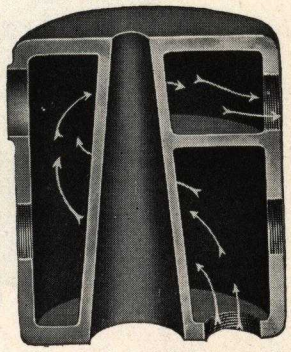
Two styles. All generators are made from heavy iron or composition brass castings and are rigidly tested before shipment. Installed slightly above coal.

Size Number	Capacity	List Price	
		Iron	Brass
1	30–52	$1.75	$ 5.50
2	80–100	3.60	12.00
30	30 } Made	....	3.20
40	40 } only in	....	4.40
60	60 } brass	....	5.20

Style of Nos. 30-40-60

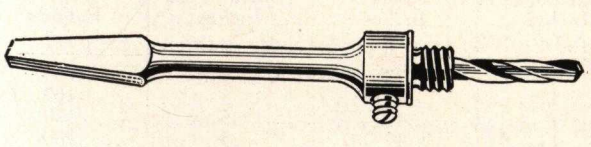


Style of Nos. 1 and 2



The Burt Circle Saw

Cuts perfect holes quickly. Heads are made in pipe sizes from ¾" to 2", and in o. d. sizes up to 5½". Handles for brace or electric drill are detachable and will fit all sizes of Heads.

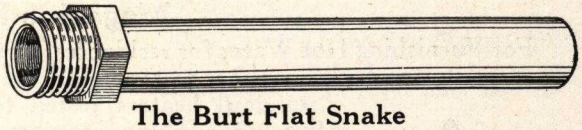


List Prices of Burt Circle Saws

		Each
Brace Handle	.....	$0.75
¼-inch or ½-inch Shank Handle	.....	.90
Heads (including blade).	Pipe	O. D.
¾-inch and 1-inch	$0.85	$0.85
1¼-inch and 1½-inch	1.05	1.05
2-inch	1.25	1.15
2½-inch and 2¾-inch	.....	1.25
3-inch	.....	1.30
3½-inch	.....	1.40
4-inch	.....	1.50

Burt Copper Tank Tubes

Made in lengths of 48" and 54", from seamless copper tubing with ½" pipe size brass bushing, expanded and sweated into place.

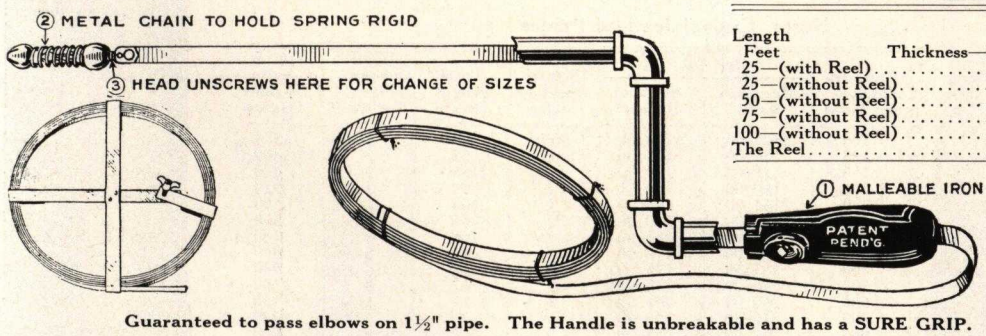


The Burt Flat Snake

It goes thru elbows.

Sizes and List Prices

Length Feet — Thickness—Inches	¼-inch Wide 1/32	½-inch Wide 1/16	¾-inch Wide 1/16	⅞-inch Wide ⅛
25—(with Reel)	$ 1.75	.....	.....	.....
25—(without Reel)	.....	$ 2.40	$ 4.00	$ 7.00
50—(without Reel)	.....	4.50	6.00	9.00
75—(without Reel)	.....	6.00	8.00	12.00
100—(without Reel)	.....	8.00	10.00	15.00
The Reel	.....	1.25	1.25	1.50



Guaranteed to pass elbows on 1½" pipe. The Handle is unbreakable and has a SURE GRIP. Steel is of highest grade.

The Burt Pipe Vise Stand

Three Legged Type

List $12.00

Burt Closet Augurs

	Single Tube	Double Tube
3-ft. Long	$2.00	$2.50
6-ft. Long	2.75	.....

Burt Rotary Speed Drill

With 17-ft. coil snake wire

Turns into the piping—swiftly

List, Complete $7.50

S. WILKS MFG. COMPANY — CHICAGO, ILL.

3517 Shields Avenue

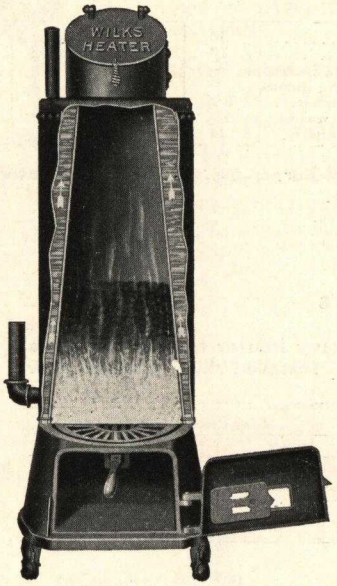
WILKS

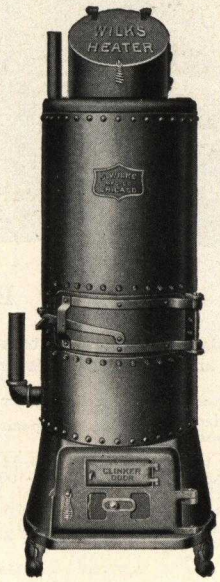
Wilks Steel Water Heaters

Surface Burners Only—For Hot Water Supply. For residences, barber shops, etc. Can be used with either hard or soft coal. The smoke pipe connection is at the back of feed box on top of heater. Heater is perfectly safe, easily managed and economical in fuel.

All Wilks small size heaters, except 10 x 18, are furnished with shaking and dumping grate with center slide. All sizes, except 10 x 18, can be furnished with front fire door. Unless otherwise specified small size heaters are furnished **without** fire door in shell.







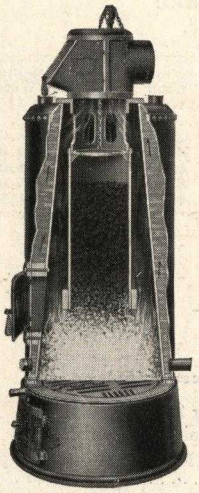
Sizes, Capacities and Prices

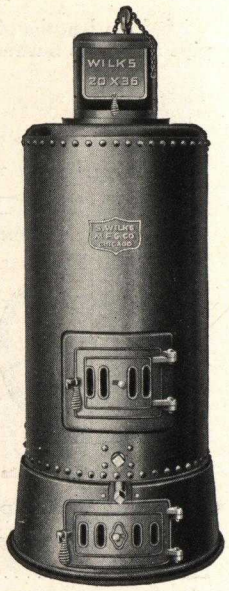
Size of Boiler Inches Diam. Height	Capacity Gallons per Hour	LIST PRICE Without Fire Door	LIST PRICE With Fire Door	Size of Openings Inches	Total Height Inches	Size of Smoke Pipe Inches	Approximate Weight Pounds
10 x 18	40	$52.00	.....	1	32	4	100
12 x 24	65	64.00	$80.00	1	43	5	160
12 x 30	80	66.00	82.00	1	49	5	170
14 x 30	100	76.00	94.00	1¼	49	5	200
14 x 36	120	80.00	98.00	1¼	55	5	235

Magazine Feed or Surface Burner

For Furnishing Hot Water for residences, apartments, hotels, laundries, barber shops, bath houses, etc., and wherever hot water supply is required. Can be used with hard or soft coal.

Standard heaters tested to 100 pounds pressure and constructed for maximum working pressure of 65 pounds. Can furnish extra heavy heaters for greater pressures at extra price.



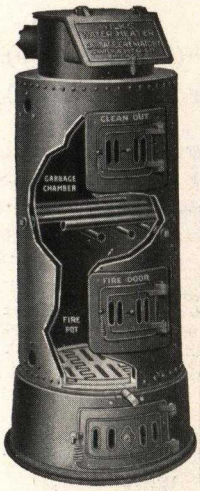


Sizes, Capacities and Prices

Size of Boiler Inches Diam.—Height	Capacity Gallons per Hour	LIST PRICE Magazine Feed	LIST PRICE Surface Burner	Size of Openings Inches	Total Height Inches	Size of Smoke Pipe Inches	Approximate Weight Pounds
16 x 24	100	$125.00	$120.00	1½	46	5	375
16 x 30	130	130.00	125.00	1½	52	5	400
16 x 36	150	135.00	130.00	1½	58	5	420
20 x 30	200	160.00	150.00	2	54	7	520
20 x 36	250	165.00	155.00	2	60	7	550
20 x 42	275	170.00	160.00	2	66	7	580
24 x 36	300	195.00	185.00	2	60	8	780
24 x 42	350	200.00	190.00	2	66	8	810
24 x 48	400	205.00	195.00	2	72	8	840
30 x 42	500	250.00	235.00	3	67	8	1100
30 x 48	600	260.00	245.00	3	73	8	1150
30 x 54	700	270.00	255.00	3	79	8	1240
36 x 42	900	370.00	355.00	3	68	8	1900
36 x 48	1000	390.00	375.00	3	74	8	2000
42 x 42	1200	430.00	412.00	3	69	9	2400
42 x 48	1400	450.00	432.00	3	75	9	2500

The heating capacity as given above is based on raising the temperature of the water in the storage tank 50 degrees Fahrenheit in one hour.

Wilks Water Heater and Garbage Burner



Especially designed for heating water and burning garbage in residences, apartment buildings, hotels, hospitals, restaurants, etc.

Constructed of heavy steel boiler plate carefully riveted and braced and tested to 100 pounds hydrostatic pressure. The garbage grate is made of the very best boiler tubing, which is securely fastened by being expanded into openings in the inner shell. The garbage grate thus forms a part of the heating surface and there is a constant circulation of water through the tubes, which greatly increases the efficiency of the heater and also prevents the tubes from being injured by the heat.

The staggered arrangement of the tubes and the double row of tubes provides additional heating surface and also exposes to the fire a greater horizontal surface of the garbage.

In the outer shell, opposite the ends of each tube, are cleanout plugs, which should be removed every two or three months, and the tubes thoroughly cleaned of any sediment or scale which might accumulate in them. The cleanouts at the bottom should also be removed and the entire boiler flushed out with water every few months.

The Garbage Chamber and fire pot are wide and deep with large and convenient doors.

The Base is furnished with sectional rocking boiler Grates which readily break up all clinkers, so that any kind of soft coal can be used successfully.

Proper Size, Operation, etc.—It is advisable to select a Garbage Burner with a heating capacity equal to the maximum demand for hot water during any hour of the day.

No.	Size of Boiler Inches Diam.—Height	Heating Capacity Gallons Per Hour	List Price	Total Height Inches	Diameter of Grates Inches	Size of Opening Inches	Size of Smoke Pipe Inches	Weight Pounds
1	16 x 36	200	$190.00	56	12	1½	7	550
2	20 x 42	300	230.00	64	15	2	8	825
3	24 x 42	400	260.00	66	19	2	8	950
4	30 x 48	500	385.00	72	24	3	8	1300

The heating capacity as given above is based on raising the temperature of the water in the storage tank 50 degrees Fahrenheit in one hour.

Square Type

They are made of heavy steel boiler plate, carefully riveted and braced, and tested to 100 pounds hydrostatic pressure.

The garbage grate is made of the very best boiler tubing, which is securely fastened by being expanded into openings in the inner shell.

The garbage grate thus forms a part of the heating surface and there is a constant circulation of water through the tubes, which greatly increases the efficiency of the heater and also prevents the tubes from being injured by the heat.

In the outer shell opposite the ends of each tube are clean-out plugs which may be removed and the tubes thoroughly cleaned of any sediment or scale which might accumulate in them.

Clean-outs are also provided at each corner end for removing any sediment in the water jacket.

The garbage chamber and fire-pot are wide and deep, with large and convenient doors.

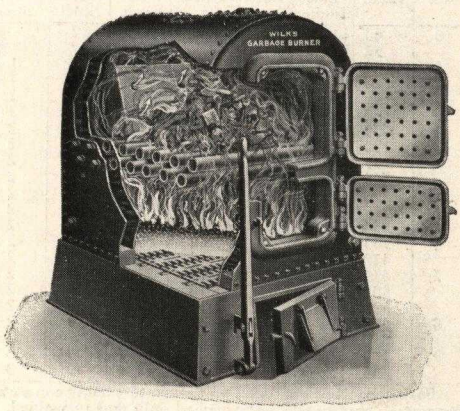
The base is furnished with sectional, rocking boiler grates, which readily break up all clinkers, so that any kind of soft coal can be used successfully.

The staggered arrangement of the tubes as shown in the cut provides additional heating surface, and also exposes to the fire a greater horizontal surface of the garbage.

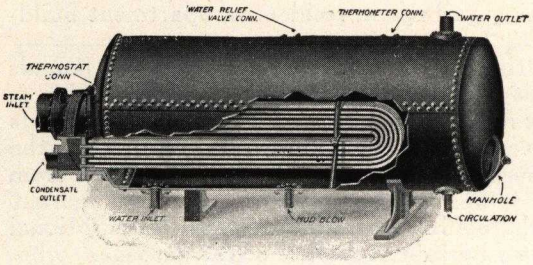
Sizes, Capacity and Price List

Number	23	24	5	6	7	8	9	10
Heating Capacity, Gallons per hour.	500	600	800	1000	1200	1300	1400	1500
Capacity Garbage Chamber, Bushels	2	3	4	5	7	8	9	10
Height Over-all, Inches	56	56	56	56	56	56	56	56
Width of Heater, Inches	24	24	30	30	30	36	36	36
Length of Heater, Inches	24	30	30	36	42	36	42	48
Dimensions of Floor Space, Inches.	30x30	30x36	36x36	36x42	36x48	42x42	42x48	42x54
Dimension of Coal Grate, Inches	18x18	18x24	24x24	24x30	24x36	30x30	30x36	30x42
Size of Garbage Door, Inches	15x16	15x16	15x16	15x16	15x16	15x16	15x16	15x16
Size of Fire Door, Inches	10x16	10x16	10x16	10x16	10x16	10x16	10x16	10x16
Size of Openings, Flow & Return, Ins.	2	2	3	3	3	3	3	3
Size of Smoke-Pipe, Inches	8	8	9	10	10	10	10	12
Approx. Shipping Weight, Pounds	1500	1600	1800	2000	2200	2300	2500	2700
List Price	$460.00	$490.00	$560.00	$610.00	$660.00	$710.00	$750.00	$780.00

The heating capacity as given above is based on raising the temperature of the water in the storage tank 50 degrees Fahrenheit in one hour.



THE WHITLOCK COIL PIPE COMPANY HARTFORD, CONN.

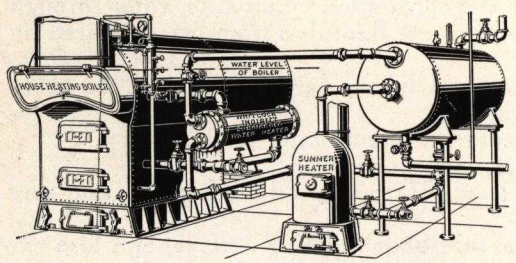


Whitlock Standard Type K Storage Heaters (Steel Shells) and Whitlock Eterno Storage Heaters (Copper Lined Shells)

These heaters are manufactured in both horizontal and vertical patterns and in the sizes given in the following table, as well as in larger and special sizes. For complete description and tables, installation diagrams, etc., write for bulletins 40 and 41.

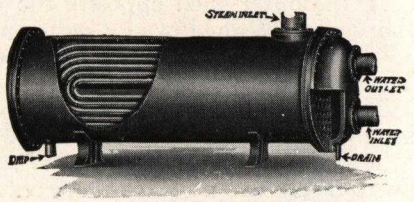
SHELLS To be used with Type K Heating Section Shell Prices include Cradles. Manhole 11x15 Inches								HEATING SECTIONS Capacity based on Heating from 40 to 180 degrees with Steam at 0 pounds pressure. For other temperatures and Steam Pressures see Bulletin No. 27.					
Number	Price List	Gallons One Filling	Diameter of Shell	Length of Shell	Thickness of Shell	Thickness of Head	Weight of Shell	Number	Price List	Gallons per Hour	Maximum Size Steam Pipe Inches	Smallest Shell into which Section will Fit In.	Weight of of Entire Heating Section Pounds
1	PRICES ON APPLICATION	65	18	60	1/4	3/8	400	H 0	PRICES ON APPLICATION	100	2	18x 48	75
2		80	18	72	1/4	3/8	450	H 1		150	2	18x 60	80
3		118	24	60	1/4	3/8	600	H 2		200	2	18x 72	90
4		141	24	72	1/4	3/8	700	H 3		250	3 1/2	18x 48	175
5		164	24	84	1/4	3/8	800	H 4		300	3 1/2	18x 48	185
6		185	30	60	1/4	3/8	750	H 5		350	3 1/2	18x 60	190
7		220	30	72	1/4	3/8	850	H 6		400	3 1/2	18x 60	200
8		255	30	84	1/4	3/8	950	H 7		500	3 1/2	18x 72	210
9		290	30	96	1/4	3/8	1050	H 8		550	3 1/2	18x 72	215
10		365	36	84	5/16	1/2	1300	H 9		600	3 1/2	18x 84	220
11		420	36	96	5/16	1/2	1450	H10		700	5	24x 60	300
12		475	36	108	5/16	1/2	1600	H11		800	3 1/2	18x 96	260
13		525	36	120	5/16	1/2	1800	H12		900	3 1/2	18x108	270
14		575	42	96	5/16	1/2	1850	H13		1000	3 1/2	18x120	285
15		720	42	120	5/16	1/2	2150	H14		1250	5	24x 84	370
16		860	42	144	5/16	1/2	2500	H15		1500	5	24x108	425
17		1000	42	168	5/16	1/2	2900	H16		1750	5	24x120	450
18		950	48	120	3/8	1/2	2850	H17		2000	6	30x 96	570
19		1140	48	144	3/8	1/2	3250	H18		2400	6	30x120	620
20		1310	48	168	3/8	1/2	3700	H19		2800	6	30x132	670
21		1480	48	192	3/8	1/2	4100	H20		3200	8	36x 96	860
22		1190	54	120	3/8	1/2	3250	H21		3600	8	36x108	920
23		1430	54	144	3/8	1/2	3700	H22		4000	8	36x120	950
24		1670	54	168	3/8	1/2	4200	H23		4400	8	36x132	1020
25		1900	54	192	3/8	1/2	4700	H24		4800	10	36x 96	1200
26		1420	60	12	7/16	9/16	4300	H25		5400	10	36x108	1300
27		1710	60	144	7/16	9/16	4900	H26		6000	10	36x120	1380
28		2000	60	168	7/16	9/16	5600	H27		7000	12	42x 96	1950
29		2300	60	192	7/16	9/16	6200	H28		8000	12	42x 96	2000
30		2460	72	144	7/16	9/16	5700	H29		9000	12	42x108	2300
31		2880	72	168	7/16	9/16	6400	H30		10000	12	42x108	2460

DIRECTIONS FOR USE—Select the size storage you require and combine its designating number with the number which designates the desired hourly output. Assuming a required storage of 1000 gallons (No. 17 shell 42x168) and a required hourly output of 1750 gallons (No. H16 Heating unit) you would specify a Whitlock Type K, No. 17H16.



Whitlock Type R Instantaneous Heaters

This type of water heater can be used either directly with steam (direct) or connected with a steam boiler below the water line, using the hot water from the boiler (indirect). The installation diagram at the left shows the latter method of installation and the following table gives the capacities and dimensions of the various sizes when used in this manner. For complete information as to the capacities when used directly with steam, and for information as to various special applications of type R heaters, write for Bulletin 25.



Standard Sizes, Capacities, Dimensions and Weights

Heat No.	Tank Gals.	Tank Size Inches	No. Bath-rooms	No. Apts.	Over All Lgth.	Diam. of Shell	Size Tube Connec-tions	Size Shell Connec-tions	Wt. Lbs.	List Price	Heat No.	Tank Gals.	Tank Size Inches	No. Bath-rooms	No. Apts.	Over All Lgth.	Diam. of Shell	Size Tube Connec-tions	Size Shell Connec-tions	Wt. Lbs.	List Price
0	40	14x 60	2	.....	11 5/8	7	3/4	1 1/4	80	$ 96	9	790	42x132	.....	30	43 3/4	9 1/2	3	4 1/2	360	$224
	52	16x 60	2	.....	11 5/8	7	3/4	1 1/4	80	96		845	48x108	.....	36	43 3/4	9 1/2	3	4 1/2	360	224
1	100	22x 60	4	.....	14 5/8	7	1 1/4	1 1/2	90	102		860	42x144	.....	36	43 3/4	9 1/2	3	4 1/2	360	224
2	120	24x 60	5	.....	19 5/8	7	1 1/2	1 1/2	110	109	10	935	42x156	.....	40	55 3/4	9 1/2	3	4 1/2	420	258
3	141	24x 72	.....	4	23 5/8	7	2	2	130	116		950	48x120	.....	40	55 3/4	9 1/2	3	4 1/2	420	258
	164	24x 84	.....	5	23 5/8	7	2	2	130	116		1000	42x168	.....	44	55 3/4	9 1/2	3	4 1/2	420	258
4	185	30x 60	.....	5	29 5/8	7	2	2 1/2	145	122		1035	48x132	.....	44	55 3/4	9 1/2	3	4 1/2	420	258
	220	30x 72	.....	6	29 5/8	7	2	2 1/2	145	122	11	1140	48x144	.....	48	44 1/8	12	4	6	610	313
5	255	30x 84	.....	8	34 5/8	7	2	3	170	130		1150	42x192	.....	48	44 1/2	12	4	6	610	313
	265	36x 60	.....	8	34 5/8	7	2	3	170	130		1190	54x120	.....	52	44 1/2	12	4	6	610	313
	290	30x 96	.....	8	34 5/8	7	2	3	170	130		1250	48x156	.....	54	44 1/2	12	4	6	610	313
	315	36x 72	.....	12	34 5/8	7	2	3	170	130		1350	48x168	.....	60	44 1/2	12	4	6	610	313
	330	30x108	.....	12	34 5/8	7	2	3	170	130	12	1420	60x120	.....	64	51 1/2	12	4	6	670	340
6	365	36x 84	.....	12	24 3/4	9 1/2	2 1/2	3	240	183		1425	54x144	.....	64	51 1/2	12	4	6	670	340
	420	36x 96	.....	15	24 3/4	9 1/2	2 1/2	3	240	183		1480	48x192	.....	66	51 1/2	12	4	6	670	340
7	475	36x108	.....	15	30 3/4	9 1/2	2 1/2	3 1/2	270	197	13	1660	54x168	.....	72	66 1/2	12	4	7	810	397
	500	42x 84	.....	18	30 3/4	9 1/2	2 1/2	3 1/2	270	197		1660	60x144	.....	72	66 1/2	12	4	7	810	397
	525	36x120	.....	18	30 3/4	9 1/2	2 1/2	3 1/2	270	197		1900	54x192	.....	84	66 1/2	12	4	7	810	397
8	575	42x 96	.....	20	35 3/4	9 1/2	2 1/2	4	300	207		2050	60x168	.....	90	66 1/2	12	4	7	810	397
	650	42x108	.....	20	35 3/4	9 1/2	2 1/2	4	300	207	14	2240	54x216	.....	100	51 3/8	15	5	8	930	453
9	720	42x120	.....	24	43 3/4	9 1/2	3	4 1/2	360	224		2350	60x192	.....	108	51 3/8	15	5	8	930	453
	750	48x 96	.....	28	43 3/4	9 1/2	3	4 1/2	360	224		2650	60x216	.....	120	51 3/8	15	5	8	930	453

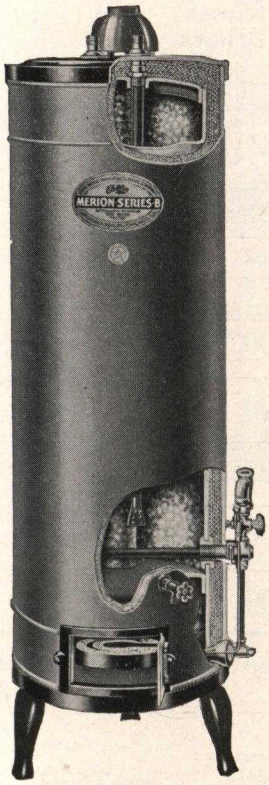
Above capacities are based on the heaters being connected to steam boiler below the water line. Companion flanges are furnished for connection 3-inch and larger. Supporting cradles will be furnished only when specified.

JOHN WOOD MANUFACTURING CO. CONSHOHOCKEN, PENNA.

Warehouse stocks carried in Boston, Richmond Hill, L. I.,
Chicago, Ill., Detroit, Mich., Los Angeles and Richmond, Calif.

Electric Weld

Merion "Series B" Automatic Water Heater



FEATURES:

Heavier Tank	Separate Pilot
Larger Burner	Snap Action Thermostat
Quicker Recovery	Adjustable Temperature of Water
More Hot Water	Large Door and Side Drain

Automatic Safety Pilot at small extra cost

15 and 20 gallon sizes will heat 26 gallons per hour...20000 B. T. U.
30 and 40 gallon sizes will heat 35 gallons per hour...27000 B. T. U.
65 gallon size will heat 47 gallons per hour.....36000 B. T. U.
100 gallon size will heat 52 gallons per hour.....40000 B. T. U.

Specify Whether With or Without Safety Pilot on First 4 Sizes

Sizes	Overall Dim. of Heater, Inches (Add 5¾-inch for Legs)	With Safety Pilot		Without Safety Pilot	
		New List Prices	Plumbers' Cost	New List Prices	Plumbers' Cost
No. 1 — 15 gals..	15x41½	$ 48.00	.....	$ 42.00	.....
No. 2 — 20 gals..	17x40⅞	50.00	.....	44.00	.....
No. 3 — 30 gals..	19x44¾	56.00	.....	50.00	.....
No. 5 — 40 gals..	19x55	67.50	.....	61.50	.....
No. 6½— 65 gals..	23x64½	165.00	.....	These two large sizes furnished only with safety pilot.	
No. 10 —100 gals..	27x64½	210.00	.....		

Note the two new large sizes now available—a 65 and a 100 gallon heater, both equipped with safety shut-off. These are ideal for small apartments, restaurants and large residences.



"Electric Weld" Septic Tanks

Size	Diameter Inches	Depth Inches	Working Capacity Gallons	Shipping Weight Pounds	List Prices
No. 1.....	38	48	200	240	$32.00
No. 2.....	48	48	300	320	42.00
No. 3.....	52	60	500	480	90.00

Made of copper bearing steel.

Have built in pipe connections that will not break off in shipping or let the pipe slip too far into the tank.

Built to meet sanitary specifications of State Boards of Health.

See Following Page.

The COPPER MERION Automatic Water Heater

The Finest Money Can Buy



FEATURES:

Automatic Safety Pilot is regular equipment
Snap Action Thermostat and Separate Pilot
Adjustable Temperature of Water
Heavy Everdur Copper Tank

Large Door	**Side Drain**
Large Burner	**No Solder**
Quick Recovery	**No Rivets**
Ample Hot Water	**No Braces**

20 gallon size will heat 26 gallons per hour.....20000 B. T. U.
30 and 40 gallon size will heat 35 gallons per hour 27000 B. T. U.
65 gallon size will heat 47 gallons per hour.....36000 B. T. U.
100 gallon size will heat 52 gallons per hour.....40000 B. T. U.

Sizes	Overall Dimensions of Heater, Inches (Add 5¾-inch for Legs)	Furnished Only with Safety Pilot	
		New List Prices	Plumbers' Cost
No. 2 — 20 gals.....	17x40⅞	$ 92.00	.....
No. 3 — 30 gals.....	19x44¾	114.00	.....
No. 5 — 40 gals.....	19x55	155.00	.....
No. 6½— 65 gals.....	23x64½	273.00	.....
No. 10 —100 gals.....	27x64½	360.00	.....

Note the two new large sizes now available—a 65 and a 100 gallon heater, both equipped with safety shut-off. These are ideal for small apartments, restaurants and large residences.

Vertical Hydro-Pneumatic Tanks

Capacity	Sizes	Price, Black	Approx. Weight, Pounds, Black	Price, Galvanized	Approx. Weight, Pounds, Galvanized
42	16x 48	.....	84	.....	95
52	16x 60	.....	100	.....	110
53	18x 48	.....	100	.....	110
66	18x 60	.....	105	.....	128
82	20x 60	.....	143	.....	157
100	22x 60	.....	155	.....	173
120	24x 60	.....	200	.....	214
144	24x 72	.....	218	.....	233
180	30x 60	.....	360	.....	401
220	30x 72	.....	390	.....	443
250	30x 84	.....	443	.....	492
300	30x 96	.....	487	.....	541
365	30x120	.....	582	.....	629
315	36x 72	.....	510	.....	555
420	36x 96	.....	602	.....	668

Horizontal Hydro-Pneumatic Tanks

525	36x120	.....	710	.....	788
720	42x120	.....	1148	.....	1205
940	48x120	.....	1752	.....	1835
1000	42x168	.....	1567	.....	1595
1130	48x144	.....	2092	.....	2180
1500	48x192	.....	2488	.....	2600
1880	48x240	.....	3010	.....	3160
2000	48x258	.....	3365	.....	3700



Shipped Less Fittings

"Electric-Weld" Range Boilers and "Wolff" Rivet Weld Range Boilers

Every Boiler Tested

List of Sizes, Capacities and List Prices. Furnished in Standard, Extra Heavy and Double Extra Heavy

Range Boilers

Nominal Capacity, Gallons	Size, Inches	List Price
18	12x36	$14.50
24	12x48	15.75
30	12x60	19.00
32	14x48	21.00
40	14x60	24.00
42	16x48	26.00
52	16x60	31.00
66	18x60	38.00
82	20x60	45.50
100	22x60	63.50
120	24x60	72.50
144	24x72	103.00
192	24x96	132.00

Expansion Tanks

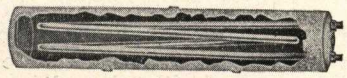
Nominal Capacity, Gallons	Size, Inches	List Price
10	12x20	$ 8.00
15	12x30	9.00
20	14x30	12.50
26	16x30	14.00
32	16x36	15.00
42	16x48	16.50

Additional Prices for Coils

Diameter, Inches	List Price	Diameter, Inches	List Price
12	$10.50	18	$18.00
14	12.00	20	21.00
16	16.00	22	25.00
		24	30.00



Class G-80 Coil of Iron or Copper



Class H-90

Horizontal Coil Boiler with Seamless drawn copper coil.



Class K-110

Horizontal Coil Boiler with coil outlets at bottom.



Class I-100

Horizontal Coil Boiler with galvanized iron coils. Made up with return bends.



Class L-120

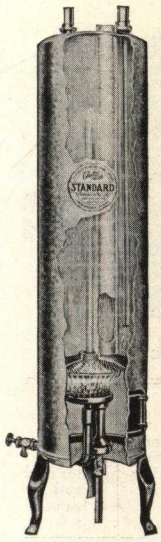
Horizontal Coil Boiler with outlets at top and bottom.



The "Standard"

Combination Boiler and Gas Water Heater (Non-Automatic)

FEATURES:



Large burner furnishes hot water quick and lots of it. Heating element with insulated copper riser pipe means hot water rises to top of tank immediately. All sizes have 1-inch side spud in middle of tank on right-hand side. Standard Heaters are furnished with condensation pan, boiler stand and sediment fittings for drain connection. Drain faucet not furnished.

Sizes	Capacity in Gallons	Size of Tank Inches
No. 0	6	12x24
No. 1	12	12x37
No. 2	17	12x48¾
No. 3	24	14x48¾

For overall height of heaters add 10 inches for legs

You can make real money selling a Standard Combination Boiler because only a minimum of time and material is required to install it. For the customer it saves space, gas and time in heating up.

Note the new small size we now make. It is becoming law in many states for Barber Shop and Beauty Parlors to have running hot water. This means more water heater sales.

If your prospect is not in the market for a water heater, sell him a genuine Electric Weld Range Boiler. They cost no more than imitations

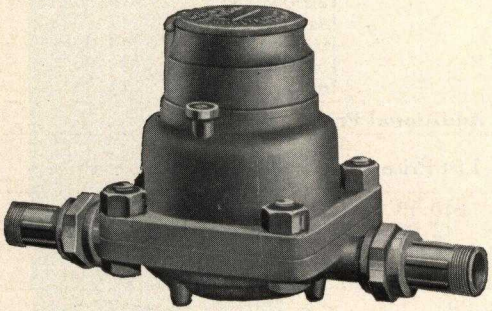
BUFFALO METER COMPANY BUFFALO, N. Y.

2911 Main Street

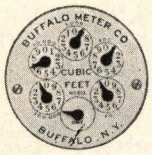
Niagara and American Disc Water Meters

PATENTED

Solid Casing Type



⅝-Inch Size

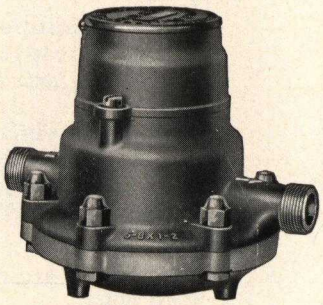


Round Reading Register



Straight Reading Register

Frost Bottom Type

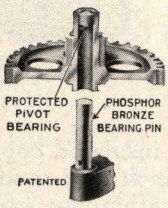


⅝-Inch Size

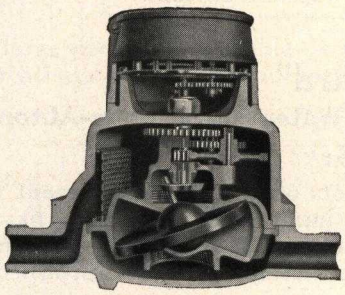
Meters having outside casings made of galvanized cast iron bear the name Niagara. Those having bronze casings are called American. Both contain our standard working parts made of the finest bronze, phosphor bronze, hard rubber and nickel silver. There are only five submerged moving parts, and these are protected against sand and sediment. The intermediate gears revolve on patented enclosed pivot bearings that minimize friction, prevent vertical wear and keep the gears in proper mesh. The thick hard rubber measuring disc is reinforced with a perforated metal plate moulded into it and will withstand the hardest service. Straight or round reading dials can be furnished to read in Cubic Feet, U. S. Gallons, Imperial Gallons or Litres as desired.

Niagara and American patented frost bottom meters are made in the four most used sizes as listed below. The works are exactly like the solid casing type and are equally accessible for inspection or cleaning. If these meters freeze, when ice pressure reaches 450 pounds the frost bottom breaks, allowing all submerged parts,—disc, chamber and gearing,—to separate, relieving all strain. Each frost bottom is individually tested not to break at less than 400 pounds pressure. It provides a new disc chamber seat after each freezing. A new ⅝-inch frost bottom costs 39 cents net.

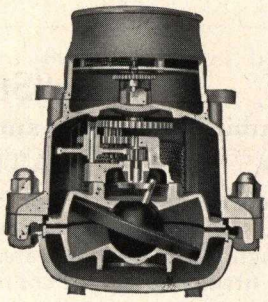
Niagara and American meters are individually tested to meet the accuracy and flow requirements of the American Water Works Association.



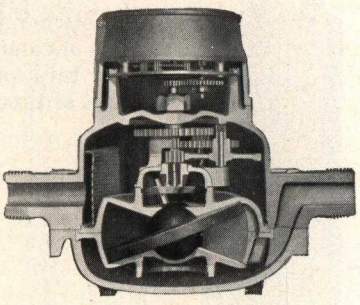
Cross - section of intermediate gear.



Sectional View—Solid Casing Type



Sectional View Meter cut at right angles to pipe, frost bottom casing broken and parts separated by the ice.



View Meter cut along line of pipe, works in normal position.

Gross Price List Solid Casing Types

Size Inches	Greatest Proper Capacity U. S. Gallons Per Min.	Niagara Meter Only Galv. Cast Iron Casing	American Meter Only All Bronze Casing	Brass Couplings Per Pair Extra	Approx. Shipping Weight Meter and Couplings Pounds
⅝x½	20	$16.00	$20.00	$1.00	14
⅝x¾	20	16.00	20.00	1.50	14
¾	34	24.00	30.00	1.50	20
1	53	35.20	44.00	2.20	30
1¼	75	48.00	60.00	3.00	40
1½	100	64.00	80.00	4.00	60
2	160	96.00	120.00	6.00	90
2½	240	140.00	175.00	8.75	150
3 flanged	315	200.00	240.00	Flanges	200
3 flanged	375	240.00*		free	285
4 flanged	500	400.00*		"	500
6 flanged	1000	800.00*		"	870

*Heavy Duty Type.

Gross Price List Frost Bottom Types

Size Inches	Greatest Proper Capacity U. S. Gallons Per Minute	Niagara Meter Only Galv. Cast Iron Casing and Frost Bottom	American Meter Only Bronze Casing and Galv. Iron Frost Bottom	Brass Couplings Per Pair Extra	Approx. Shipping Weight Meter and Couplings Pounds
⅝x½	20	$16.00	$18.00	$1.00	12
⅝x¾	20	16.00	18.00	1.50	12
¾	34	24.00	27.00	1.50	17
1	53	35.20	39.60	2.20	26

ROBERTSHAW THERMOSTAT COMPANY YOUNGWOOD, PA.

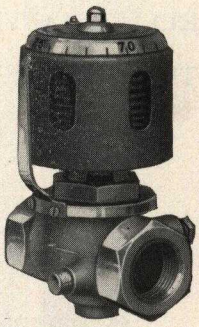
Branch Offices and Representatives:

Birmingham, Ala., F. J. Evans Engineering Co., Watts Bldg.
Brookline, Mass., J. C. McAllister, 87 Perry St.
Buffalo, N. Y., John B. Madden, 157 Highland Ave.
Chicago, Ill., Robertshaw Thermostat Co., 1504 Straus Bldg.
Cincinnati, Ohio, R. I. Maujer, 3500 Daytona Ave.
Cleveland, Ohio, R. B. Clapp & Company, Leader Bldg.
Detroit, Mich., A. A. Treadway, Inc., 7644 Woodward Ave.
Houston, Texas, Haylett O'Neill, Post-Dispatch Bldg.
Kansas City, Mo., Rivard-Gallagher Company, 343 B. M. A. Bldg.
London, England, Sarco Co., Ltd., 133 LongAcre, W. C. 2.
Los Angeles, Cal., Parsons Engineering Co., 458 S. Spring St.
New York, N. Y., Robertshaw Thermostat Company, Rm. 321-E, 30 Church St.
Omaha, Neb., D. E. McCulley Co., Inc., 1820 St. Marys Ave.
Philadelphia, Pa., Frederick, Traugott, Allen & Co., Inc., 152 N. 15th St.
Pittsburgh, Pa., Frederick, Traugott, Allen & Co., Inc., 419 Second Ave.
St. Louis, Mo., Industrial Engineering & Equipment Co., 1341 Syndicate Trust Bldg.
San Francisco, Cal., Parsons Engineering Company, 525 Market St.
Syracuse, N. Y., John L. Wagner, 911 State Tower Bldg.
Washington, D. C., Frederick, Traugott, Allen & Co., Inc., 504 Star Bldg.

ROBERTSHAW

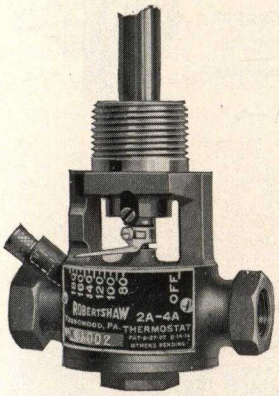
Automatic Temperature Controllers

The No. 2E Robertshaw Space Heater Thermostat is the latest development in this field. It is neat in appearance, easily installed, and very sturdy in construction. It will control the temperature within one degree. It can be set to any point within a range of twenty degrees Fahrenheit. Economical, convenient, the No. 2E Robertshaw offers unusual profit to the plumbing trade, and should be installed on every room and garage heater.



No. 2E Space Heater Thermostat

List Price— ½ inch.....Gas Pipe Size $12.00
List Price— ¾ inch.....Gas Pipe Size 12.00
List Price—1 inch.....Gas Pipe Size 16.00

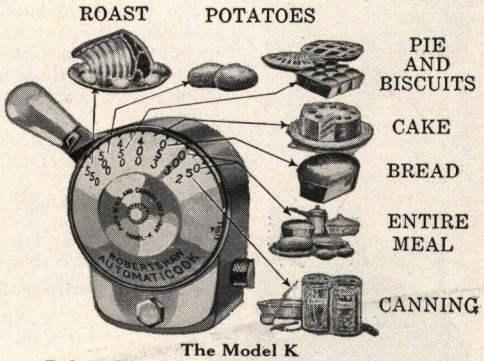


Nos. 2A-4A Water Heater Thermostat

The Nos. 2A-4A Robertshaw Thermostats have been standard to the plumbing trade for a generation. Today hundreds of thousands are giving perfect service. No storage type water heater is complete without this automatic temperature controller. The Nos. 2A-4A Thermostats are suitable for storage tanks up to 40 gallons capacity. For larger tanks the No. 3 Series is recommended.

List Price, No. 2A—⅜ inch Gas Pipe Size.....$9.25
List Price, No. 4A—½ inch Gas Pipe Size..... 9.25

More than one million five hundred thousand Robertshaw equipped gas ranges are giving perfect service today. Like all Robertshaw Thermostats, the Robertshaw AutomatiCook is built according to designs that have been thoroughly tried and proved. Each one is personally tested, set and checked to assure its absolute accuracy. It is nationally advertised. The plumbing trade has found that gas ranges equipped with the Robertshaw move faster and stay sold.



The Model K Robertshaw AutomatiCook for Gas Ranges

In addition to the above described thermostats, the Robertshaw Thermostat Company makes thermostats, both snap-action and throttling type, for all types of gas-fired appliances. These thermostats offer unusual opportunities to the plumbing trade, not only for increasing profits, but also for creating and holding consumer good-will.

The Robertshaw Furnace Thermostat for coal or coke fired warm air furnaces is the most economical thermostat of its type on the market. List price only $35.00.

Full information, together with prices and discounts, will gladly be furnished upon request.

SPENCER THERMOSTAT CO. ATTLEBORO, MASS.

KLIXON
REG. U.S. PAT. OFF

Thermostatic Controls

AUTOMATIC SAFETY BURNERS
for refrigerators and low demand water heaters.

SAFETY PILOTS

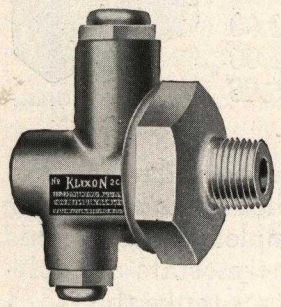
THERMOSTATS

AUTOMATIC TIME CONTROLS
for gas appliances.

RELIEF VALVES (temperature and pressure)

THERMO-ELECTRIC SWITCHES
for conversion burners and house heating boilers.

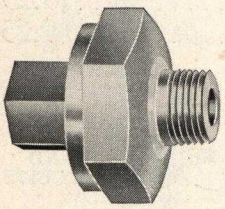
Relief Valves



2-C

Nos. 2-C, 2-S, 2-H and 2-T
Combination
Temperature and Pressure
Relief Valve
(Self-Closing)

For household boilers up to 100 gallons capacity—a safety device protecting against excessive pressures and temperatures built up from any cause. Furnished with release handle for localities where this is required.



1-C

Nos. 1-C, 1-S, 1-H and 1-T
Temperature Relief
Valve
(Self-Closing)

For household boilers up to 100* gallons capacity—automatically discharges water to relieve excessive temperatures built up by overheating. Automatically closes after reducing temperature to normal.

*Nos. 1-CL, 1-HL and 1-TL are available for boilers up to 500 gallons capacity.



1-N

No. 1-N
Temperature Relief
Valve
(Self-Closing)

This valve was designed to meet conditions imposed by plumbing codes in which there is a growing tendency to require that relief valves be installed **in the tank** and in such a way that they cannot be wrongly located. It is installed directly in the top of the tank (copper or galvanized) without requiring drilling or tapping.

Pressure Relief
Valve
(Self-Closing)

A thoroughly reliable pressure relief valve of the spring-set type for domestic hot water supply systems. All metal parts highest quality valve bronze. Phosphor bronze valve spring. Pressure adjustable from 80 to 200 lbs. Supplied with or without release handle.



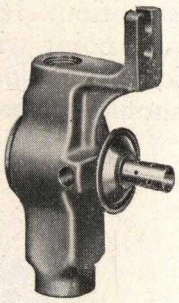
B-1590



B-1591

B-1226 Safety Pilot

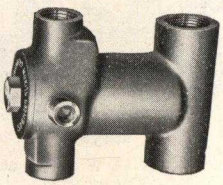
The approved B-1226 KLIXON safety pilot shuts off the gas if the pilot flame is extinguished. Furnished with annealed copper pilot tubing and the proper compression fitting. Applicable to any coil or circulating tank heater. Easily attached.



B-1226

T.G. 13-P Thermostat

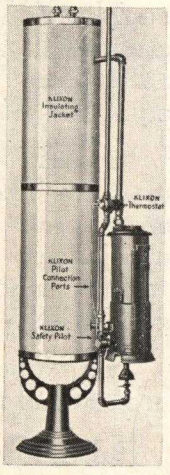
The key piece for converting a non-automatic gas water heater into an automatic storage system. Installed in the circulating line above the heater as shown in the illustration below. You do not have to drill the tank. Annealed copper pilot tubing, with the proper compression fittings and pilot tip, is furnished. It shuts off the gas when a sufficient amount of hot water is stored in the tank. When enquiring, specify size of tank in gallons and type of gas to be used.



T. G. 13-P

Conversion Kit
for Gas Water Heaters

Safety pilot B-1226 and thermostat T.G. 13-P shown above are furnished as part of a complete kit to convert water heaters into automatic storage systems. Included is a 3-ply air-cell asbestos tank cover in four sections and all necessary minor fittings. Standard sizes are 20, 30 or 40 gallons. A typical installation is shown at the right.



THE AMERICAN BRASS COMPANY

General Offices—Waterbury, Conn.

For Mills, Factories, Offices and Agencies, see our page on Anaconda Pipe

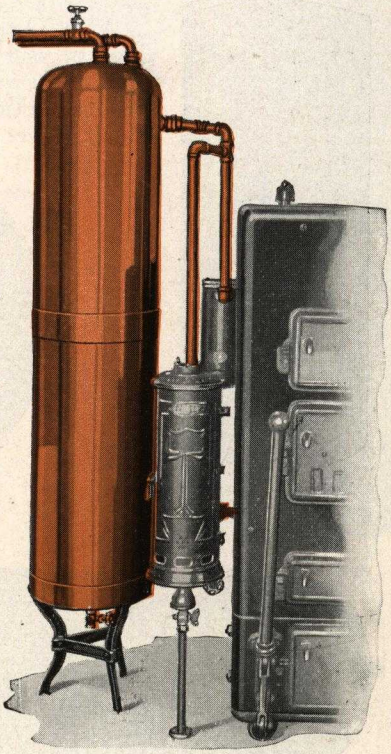
Brown & Brothers Seamless Drawn Copper Range Boilers

To help meet the growing demand for non-rusting hot water storage tanks, The American Brass Company has taken over the production of "Brown & Brothers" Copper Range Boilers. These range boilers have maintained a standard of quality since 1876 that has never been excelled. Now, to better meet conditions imposed by higher water pressures, The American Brass Company is using **extra heavy gauge copper** in the construction of all models.

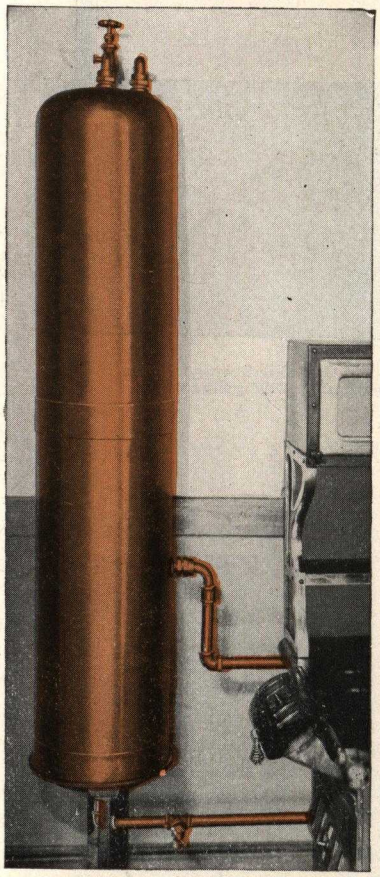
The strength and durability of Brown & Brothers range boilers are accounted for by their unique construction, by the simplicity of their design and by the quality of the copper of which they are made. They are constructed of two **seamless, cold-drawn** shells of Anaconda Copper. In fabricating the shells, the closed ends are left considerably heavier than the sides. The shells are telescoped together under hydraulic pressure and the joint, the only seam in the boiler, is reinforced and concealed by a heavy seamless band of Anaconda Copper. This construction insures excess strength at important points.

The interiors are heavily tinned.

Brown & Brothers range boilers, when installed, should, like all other hot water storage tanks, be provided with relief valves, set at the lowest pressure consistent with their efficient operation.



Brown & Brothers Copper Range Boilers can be used with any type of independent water heater operated by gas, oil, coal or electricity, including ranges and furnaces.



One of the first Brown & Brothers range boilers, as good as new after more than 40 years' service. Other Brown & Brothers boilers have given even longer service without any expense for repairs.

All boilers are manufactured of extra heavy metal to meet 300 pound test and are recommended for working pressures which do not exceed 127½ pounds per square inch.

Standard Vertical Boilers

Capacities, Dimensions and Prices

Capacity Gallons	Thickness of Side Wall Inches	Dimensions Inches	List Price Each	Capacity Gallons	Thickness of Side Wall Inches	Dimensions Inches	List Price Each
30	.060	12x60	$50.00	100	.100	20x70	$225.00
35	070	14x53	60.00	100	.120	24x60	250.00
40	.070	14x60	65.00	120	.120	24x65½	270.00
50	.080	16x60	100.00	125	.120	24x69	275.00
60	.080	16x70	125.00	150	.120	24x78½	300.00
60	.100	20x44	150.00	180	.120	24x92½	340.00
80	.100	20x60	190.00	200	.120	24x103	400.00

High-Low Side Connections in Vertical Boilers furnished without extra charge.

Horizontal and Special Boilers

Horizontal Boilers of 30, 35 and 40 gallon capacity, add $5.00 each to above list prices.
Horizontal Boilers of 50 gallon or larger capacity, priced the same as Standard Vertical.
Special Constructed Boilers, prices quoted upon application.

Couplings

Standard equipment up to four regular couplings furnished without extra charge. Where large size couplings are required, add the following net charges:

¾-inch Standard Pipe Size (female)..per coupling $0.40
1 -inch Standard Pipe Size (male)....per coupling .40
1 -inch Standard Pipe Size (female)..per coupling .75

Brown & Brothers Copper Range Boilers may be obtained through leading plumbing supply houses in all standard sizes up to and including 200 gallons capacity.

It is recommended that tanks of more than 200 gallon capacity be made of Everdur (hardened and strengthened copper). Storage tanks of this Anaconda alloy are available from a number of leading tank manufacturers.

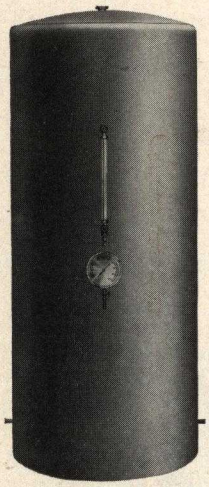
Brown & Brothers Boilers, like all rust-proof tanks, should be connected with Brass Pipe.

For American Brass Pipe See Page 516

AIR-TIGHT STEEL TANK CO. PITTSBURGH, PA.

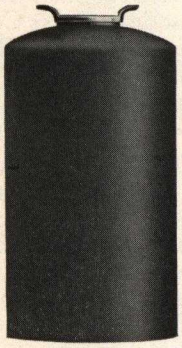
Hazelwood Branch P. O.

Manufacturer of ATSCO Steel Tanks

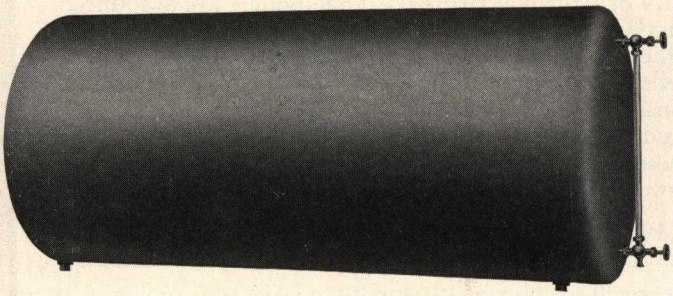


Hydropneumatic Vertical

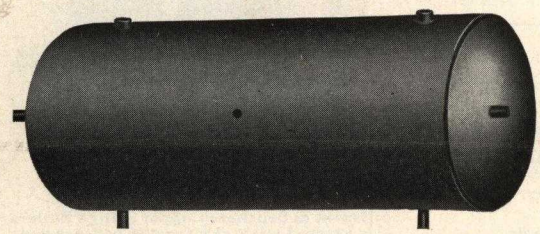
ATSCO tanks are also built to comply with the A. S. M. E. Code for high pressure service and are approved for use by various other authorities, codes and the Canadian Provinces. When an ATSCO tank is tested to destruction by hydraulic pressure it always fails by rupture in the sheet, never in the seam.



Water Softener and Fire-Engine Tanks



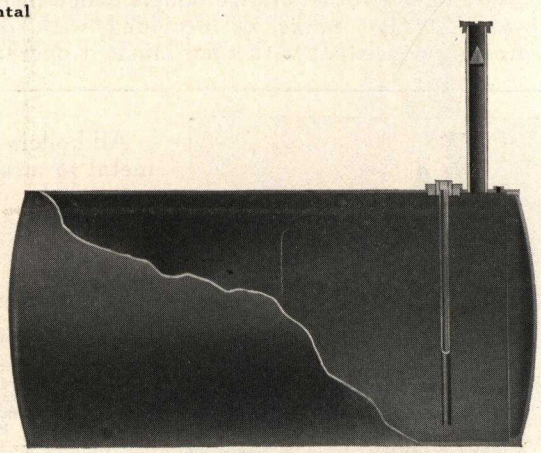
Hydropneumatic Horizontal



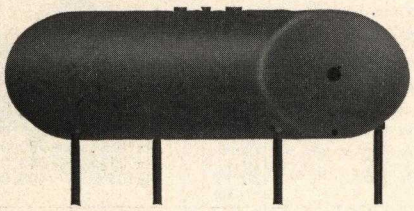
Hot Water Storage Tanks



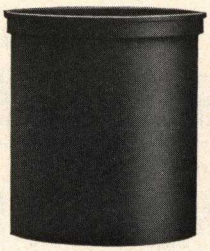
Portable Air Tanks



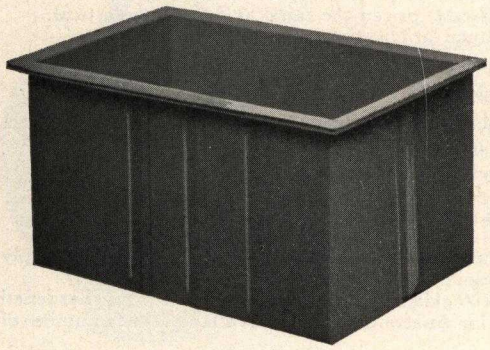
Underground Gasoline Storage Tanks
60 gallons to 2000 gallons



275 Gallon Oil Burner Tanks
(Largest allowed by Underwriters in cellar. Will enter a 28-inch doorway)



Open Top Tanks



Square and Rectangular Tanks

Write for complete sizes and description of the various types of tanks illustrated above. Prices and Discounts furnished on request.



Type H—Isolated gasoline or oil storage unit with pump and weather-proof locking lid

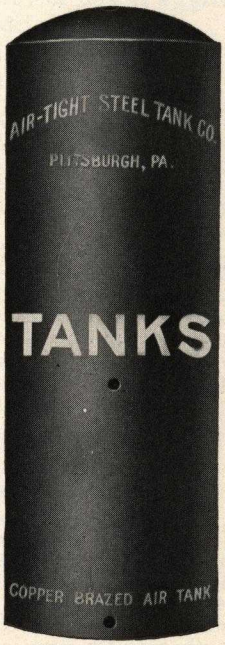
Manufacturer of ATSCO Steel Tanks

ATSCO steel tanks constructed by the genuine copper brazed process have been used over a period of years for the most severe tank service known—such as Pintsch gas tanks for railway car lighting service—main air reservoirs on locomotives—the shipment of liquefied petroleum products and compressed gases—compressed air starter tanks for Diesel and oil engines, and for hundreds of other miscellaneous uses.

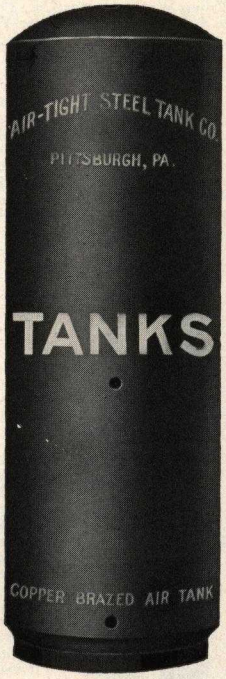
ATSCO tanks will stand almost any amount of rough handling—and remain absolutely air tight—as the joints are soft and ductile and can even be dented and mashed out of shape without likelihood of leaking. The seams are lapped at least eight thicknesses of the metal and brazed the entire width of the lap with pure copper making the joint much stronger than the metal itself elsewhere.

This Price List Applies to ATSCO Standard Copper-Brazed Pressure Tanks Only

Size		Nominal Capacity		85 lbs. Work. Press.	100 lbs. Work. Press.	125 lbs. Work. Press.	150 lbs. Work. Press.	200 lbs. Work. Press.	250 lbs. Work. Press.	300 lbs. Work. Press.	350 lbs. Work. Press.	400 lbs. Work. Press.
Diameter	Length Over All	Gal.	Cu. Ft.	Price	Price	Price	Price	Price	Price	Price	Price	Price
12	24	10	1.3	$ 17.75	$ 17.75	$ 17.75	$ 17.75	$ 24.00	$ 24.25	$ 31.00	$ 31.00	$ 36.25
12	36	16	2.1	23.50	23.50	23.50	23.50	28.00	31.00	33.50	33.50	41.00
12	48	22	2.9	25.75	25.75	25.75	25.75	30.00	32.00	42.00	42.00	51.50
14	24	14	1.9	21.50	21.50	21.50	24.00	28.25	30.50	31.00	37.75	37.75
14	36	22	2.9	24.75	24.75	24.75	28.25	29.00	32.75	40.75	50.00	50.00
14	48	30	4.0	29.50	29.50	29.50	30.50	37.00	40.75	42.25	57.50	57.50
14	54	34	4.5	30.25	30.25	30.25	33.50	41.00	45.00	46.50	61.50	61.50
16	24	18	2.4	23.00	23.00	25.25	31.00	36.00	36.25	44.50	44.50	54.00
16	36	28	3.7	29.25	29.25	32.75	33.00	37.75	39.50	58.25	58.25	64.25
16	48	38	5.1	30.50	30.50	33.50	39.25	39.50	45.00	64.75	64.75	79.75
16	60	48	6.4	43.50	43.50	43.50	45.50	47.50	58.50	77.50	77.50	84.50
16	72	58	7.8	44.25	44.25	44.25	45.75	55.00	61.25	90.00	90.00	98.50
18	36	35	4.7	27.75	27.75	31.25	38.25	46.75	53.00	61.25	74.50	74.50
18	48	47	6.3	30.00	30.00	37.75	41.50	56.75	58.00	75.00	92.25	92.25
18	60	60	8.0	41.50	41.50	41.50	44.50	60.25	68.50	89.00	97.25	97.25
18	72	73	9.8	48.50	48.50	48.50	51.25	70.25	79.00	91.75	112.75	112.75
18	84	86	11.5	55.50	55.50	55.50	58.50	80.00	89.75	114.50	138.50	138.50
20	48	60	8.0	36.25	41.50	42.00	46.00	56.75	82.50	82.50	89.50	105.75
20	60	76	10.2	46.00	46.00	49.50	54.25	67.25	87.00	87.00	106.75	126.50
20	72	92	12.3	53.50	53.50	57.00	60.75	78.00	100.75	100.75	124.00	147.50
24	60	107	14.3	56.00	58.00	60.00	83.25	101.25	106.50	130.50	153.50	184.00
24	72	130	17.4	58.25	62.75	69.50	85.50	117.75	123.00	151.25	179.25	212.75
30	60	175	23.4	71.75	77.75	97.75	100.50	139.25	170.25	201.00	240.00	261.50
30	72	202	27.0	81.75	89.00	109.25	116.75	160.00	195.75	231.50	276.00	303.50
30	84	237	31.7	92.25	94.50	123.00	131.25	180.00	221.00	263.50	312.00	345.50
30	96	273	36.5	94.00	99.25	137.00	146.75	201.00	247.25	293.75	348.00	384.50
30	120	345	46.2	109.25	119.50	166.75	177.25	242.75	298.00	349.50	420.00	470.00
30	144	416	55.6	127.25	139.50	195.50	208.00	283.00	350.25	417.00	492.00	533.25
36	60	236	31.5	87.25	98.25	125.00	184.25	212.50	249.75	299.25	326.00	.....
36	72	287	38.3	99.50	135.25	144.00	199.00	243.00	287.25	342.50	375.50	.....
36	84	339	45.3	112.00	152.25	162.00	223.75	274.00	324.00	385.75	424.75	.....
36	96	391	52.2	124.00	169.50	181.00	248.50	304.50	361.50	428.50	473.00	.....
36	120	494	66.0	148.75	212.75	217.50	297.50	366.00	435.00	515.25	573.25	.....
36	144	597	79.9	173.75	237.00	255.00	332.25	427.75	508.50	601.25	672.00	.....
42	84	467	62.5	185.50	197.00	257.00	333.50	393.75	470.25	514.25	.....	.....
42	96	528	70.5	207.50	219.00	286.00	346.00	436.75	520.50	572.50	.....	.....
42	120	681	91.2	247.75	258.00	344.75	443.00	525.00	622.75	689.00	.....	.....
42	144	824	110.0	288.00	303.00	401.25	514.00	610.50	723.50	797.00	.....	.....
48	84	605	80.9	222.50	327.75	327.75	398.75	561.75	611.75	.....	.....	.....
48	96	700	93.5	245.25	360.75	360.75	439.50	619.25	677.00	.....	.....	.....
48	120	887	118.5	290.50	424.75	424.75	522.00	734.25	808.25	.....	.....	.....
48	144	1075	143.8	333.75	517.00	517.00	604.00	848.50	935.50	.....	.....	.....



Type A for Pressure



Type B for Highest Pressure

THE BIGGS BOILER WORKS COMPANY — AKRON, OHIO

Biggs Tanks, Welded or Riveted—*"Made Right, Always Tight"*

Biggs Black Riveted Extra Heavy Hot Water Storage Tank

100 Pounds Working Pressure

Biggs carries a complete stock of black riveted extra heavy hot water storage tanks. Every size from 100-gallon to 2,500-gallon ready for immediate shipment. All tanks have handhole in head—no extra charge. The large tanks are stocked with manholes. Immediate shipment with either handholes or manholes.

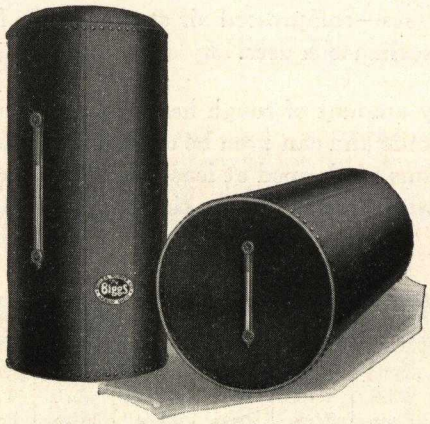
Tanks 60 and 72 inches in diameter regularly furnished with one head concave and one head convex. Manhole on these two sizes located in concave head. Additional openings furnished at small extra cost.

All these tanks of extra heavy construction. Longitudinal seams double riveted.

Biggs Welded Pneumatic Water Supply Tanks

All Stock Sizes
75 Pounds Working Pressure

Biggs Welded Pneumatic Water Supply Tanks are of exceptional high grade construction and can be depended upon to give long service and satisfaction. Sizes from 42 to 525 gallons. All sizes ready for shipment **from stock.** Biggs welded pneumatic tanks have the same openings as the corresponding sizes in the riveted pneumatic line. Designed for all installations.



Biggs Riveted Pneumatic Water Supply Tanks

Biggs extra heavy riveted pneumatic water supply tanks are made in sizes and capacities from 117 to 15,000 gallons. All sizes up to and including 5,000 gallons are **in stock** at all times. The 525-gallon to 5,000-gallon sizes are in stock both with and without manholes in head. Our own special location of tappings makes possible the use of standard stock tanks for practically any installation.

Biggs Black Steel Welded Hot Water Storage Tanks

All Stock Sizes

75 Pounds Working Pressure

Biggs welded hot water storage tanks are made in "standard weight." However, they are unusually heavy, assuring long life and positive safety. Sizes from 42 to 525 gallons in stock for immediate shipment.

Biggs Welded Hot Water Storage Tanks are reliable, well made, and countless tests have demonstrated the efficiency of the "Biggs Weld."

Galvanized Tanks

Any riveted or welded tanks up to and including 60-inch diameter by 10-foot long can be galvanized after manufacture. No galvanized tanks carried in stock.

Coils

All tanks can be equipped with pipe coils, either black, galvanized, brass or copper. Coils made of four pipes connected with three return bends, securely fastened to tank and properly braced. Guaranteed for working pressures not over 100 pounds.

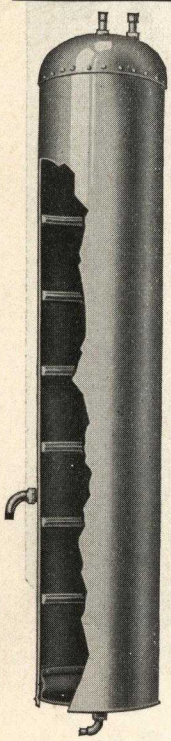
GERSTEIN & COOPER CO. — SOUTH BOSTON, MASS.

Established 1902

Main Office—1-3 West Third Street

Representatives
Troop Water Heater Co., 2516-2526 Jane St., Pittsburgh, Pa.
E. N. Cokefair, Inc., New York City.

Representatives
Gerstein & Cooper Co., 522 Park Ave., Baltimore, Md.
G. Mason Price, 832 St. James St., Montreal, Que., Can.



Vertical Type

Copper Range Boilers

Constructed of cold rolled sheet copper with brazed and hard hammered longitudinal seams. Dome head riveted to shell, then thoroughly sweated and backed with solder.

Standard boilers are constructed and tested to 200, 250 and 300 pounds hydrostatic test and are capable of standing a working pressure of 42½% of the actual test. Our boilers are also heavily reinforced with Brass corrugated rings which insure the boiler against collapse. We also manufacture a copper boiler for cistern pressure service capable of standing a pressure corresponding to a head of 30 feet of water.

Sizes and List Prices

Capacity Gallons	Dimensions Inches	Capacity Gallons	Dimensions Inches
25	11½x57	60	16½x64
30	12 x60	80	20 x60
40	14 x60	100	20 x73
50	15½x63		

Horizontal boilers with single domes, no extra charge. If double domes are required, the charge will be $5.00 more than above list.

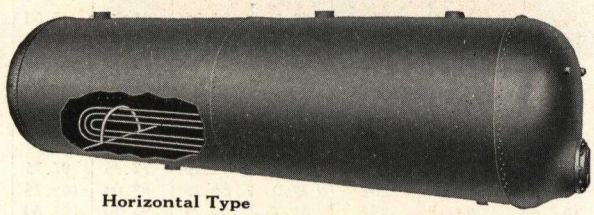
Four couplings are furnished with each boiler up to 100-gallon capacity with any of the following threads:
¾-inch I. P. S. Male.
¾-inch F. T. Female.
½-inch I. P. S. Female.
¾-inch, 1-inch I. P. S. Female Spuds.

Extra charge for large couplings—to be added to cost of regular couplings.
¾-inch I. P. S. Female $0.40
1-inch I. P. S. Female ..... .75
1-inch I. P. S. Male ..... .40

Prices on range boilers with internal steam coils quoted on receipt of specifications.

All prices F. O. B. Boston, Mass. In lots of six or more we will allow freight not exceeding $0.50 per cwt. All boilers crated for shipment.

Copper Storage Tanks



Horizontal Type

Constructed of pure cold rolled Lake copper. Tanks are designed with due regard to thickness of plate and riveted according to the best engineering practice. Tanks are furnished according to specifications either with or without heating elements for direct heating of the water. Tanks are furnished with hand hole, or with manhole, or both. Tanks with heating element are particularly adapted for laundries, apartment buildings, hotels, schools, industrial plants, steamships, etc., in fact wherever steam for heating water is available. We are equipped to build tanks for as large as 2000-gallon capacity or more.

Stock Sizes

Capacity Gallons	Dimensions Inches	Capacity Gallons	Dimensions Inches
125	22x74	300	30x 96
150	24x72	400	32x116
200	30x70	500	36x120
250	30x84	600	42x102

Prices on all other sizes and pressures will be quoted immediately upon receipt of specifications.

Tanks from 100-gallon capacity up to tanks of 42 inches diameter are furnished with a screw type bronze handhole. Tanks over this size are furnished with a 11x15-inch composition manhole.

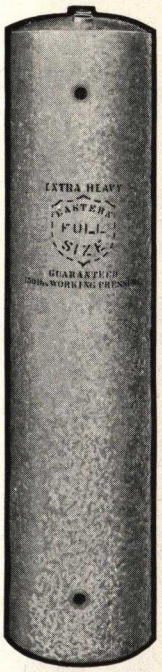
If manhole is desired in smaller sizes, prices will be $25.00 more than the above list. Prices are all F. O. B. Boston, Mass. Tanks put on skids and securely strapped for shipment.

We are equipped to manufacture Special Copper Boilers of every description

W. A. CASE & SON MFG. CO. BUFFALO, N. Y.

Executive Office: 33 Main Street

Distributors in Principal Cities. Founded 1853. Plants: Norristown, Pa., Robinson, Ill.



"Eastern" Range Boilers

Vertical or Horizontal

Standard: For working pressure not exceeding 85 lbs.

Extra heavy: For working pressure not exceeding 150 lbs.

Double extra heavy: For working pressure not exceeding 150 lbs., guaranteed for six years' service.

Regularly tapped: Five 1-in., arranged two in the head, in line with two in the side opposite the seam; one 6 in. from the top line of boiler; and the other 6 in. from the bottom line of the boiler; and one in the center of the bottom.

Additional charge is made for tappings in excess of five, and for tappings larger than 1 in., except in boilers 100 gallons and larger, which are tapped 1½ in.

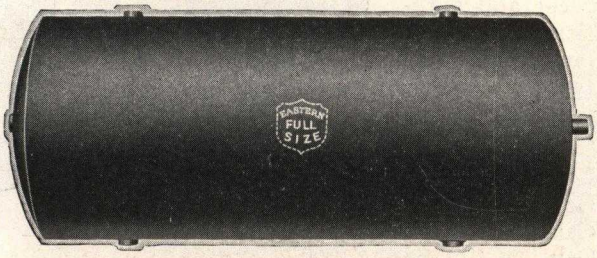
Boilers can be furnished for vertical or horizontal installation, and also with galvanized or copper coils.

Regular Sizes

Size Inches	Gallons Capacity			Size Inches	Gallons Capacity		
	Standard	Extra Heavy	Double Extra Heavy		Standard	Extra Heavy	Double Extra Heavy
12 x 36	18	18	18	18 x 60	66	66	66
12 x 48	24	24	24	20 x 60	82	82	82
12 x 60	30	30	30	22 x 60	100	100	100
14 x 48	32	32	32	24 x 60	120	120	120
14 x 60	40	40	40	24 x 72	144	144	144
16 x 48	42	42	42	24 x 96	192	192	192
16 x 60	52	52	52				

"Eastern" Tanks

"Eastern" Storage Tanks



Black or galvanized.

Standard for working pressure not exceeding 65 lbs.

Extra heavy for working pressure not exceeding 100 lbs.

Can be furnished for either vertical or horizontal installations—24 inches diameter and smaller, tapped 1½ inches; 30 to 42 inches diameter, inclusive, tapped 2 inches. Larger diameters tapped 3 inches. Can be furnished with handhole or manhole or flanged openings. Can be equipped with coils as required.

In addition to tanks listed, we are equipped to build special tanks to specifications.

Regular Sizes

Cap. Gallons	Diam. Inches	Length Feet	Cap. Gallons	Diam. Inches	Length Feet	Cap. Gallons	Diam. Inches	Length Feet
66	20	4	250	30	7	865	42	12
85	20	5	295	30	8	1000	42	14
100	22	5	372	30	10	750	48	8
100	24	4	315	36	6	940	48	10
120	24	5	365	36	7	1130	48	12
140	24	6	420	36	8	1300	48	14
180	30	5	525	36	10	1500	48	16
220	30	6	575	42	8	1700	48	18
			720	42	10			

"Eastern" Pneumatic Tanks

75 lbs. working pressure.

Black or galvanized.

Vertical or horizontal.



Regular Sizes

Cap., gal.	Diam., in.	Length, in.
42	16	48
52	16	60
53	18	48
66	18	60
82	20	60
100	22	60
120	24	60
144	24	72
180	30	60
220	30	72
250	30	84
300	30	96
365	30	120
315	36	72
420	36	96
525	36	120
720	42	120
1000	42	168

DAHLQUIST MANUFACTURING CO. SOUTH BOSTON, MASS.

General Office and Factory—A, 2nd and West 3rd Streets

Coppersmiths and Metal Workers

Products

Copper Boilers, including Heavy Pressure Boilers, Direct or Street Pressure Boilers, Tank Pressure Boilers, Pressure Barber Boilers and Copper Storage Tanks.

Steam Jacketed Copper Kettles.

Corrugated Copper Expansion Joints.

Dahlquist Aquatherm Copper Range Boiler (Patented).

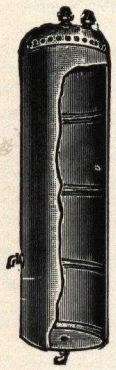
Dahlquist Aquatherm Copper Boiler Combinations complete with Gas, Electric, Coal and Kerosene Water Heaters.

Dahlquist Automatic Storage Hot Water Combinations.

Also Metal Spinning of all kinds, Boiler Stands and Gas Water Heaters.

Dahlquist Copper Boilers

Satisfaction is assured. In durability, neat appearance and cleanliness, copper is beyond comparison. Copper resists rust and corrosion as no other tank metal can.



Direct or Street Pressure Boilers

Heavy Pressure Boilers

For residences, apartment houses, office buildings, hospitals, etc., requiring a constant supply of hot water, heavy pressure boilers are made in varying capacities from 100 to 5000 gallons. Working pressures up to 300 pounds with or without coils. In ordering, state whether coil is required.

Direct or Street Pressure Boilers

Heavily reinforced with brass rings. Tops are riveted, and on the 250 and 300-pound pressure boilers both ends are riveted. In all direct pressure boilers over 80-gallon capacity, a handhole is placed in the bottom.

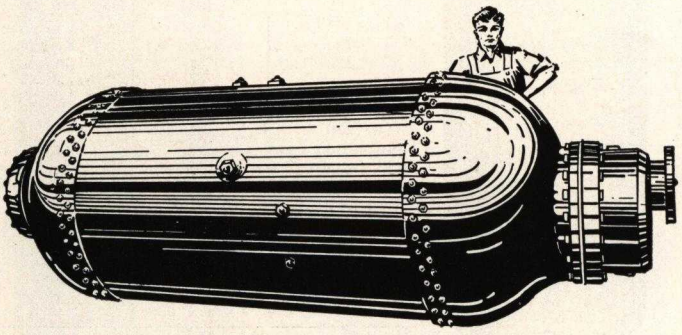
Material and workmanship are thoroughly inspected and tested, and best possible results guaranteed.

Coils

Coils may be had, if desired, with all boilers.

Capacities range from 5 to 5000 gallons. Test pressures, 200, 250 and 300 pounds. Stock range boilers are made for various pressures up to 300 pounds. Boilers made to order for pressures over 250 pounds and up to 300 pounds.

Working pressures in all cases comply with the Massachusetts Plumbing Regulations.



One of five 1,000-gallon Copper Boilers containing 6,000 pounds of copper each. Produced for the New York Life Insurance Building, New York City, Cass Gilbert, Architect, Sterrett Bros., Inc., Builders, W. G. Cornell Co., Heating & Plumbing Contractors.

The Dahlquist Copper Pressure Barber Boilers

(The Little Giant)

Have been especially designed to fulfill the exacting hot water requirements of barber shops. They have been designed to withstand the strains caused by the direct pressure and the expansion which takes place under the exceptionally large demand for hot water. Illustration shows the complete gas automatic unit made in sizes from 5 to 20 gallons capacity. These units give the barber shop a perfect economical and automatic source of hot water, trouble-free and good for a lifetime of perfect service.

Prices

5 Gals.	.....$55
10 Gals.	 65
15 Gals.	 75
20 Gals.	 85



The Dahlquist Copper Pressure Barber Boilers

Massachusetts Standard Copper Pressure Boilers

Capacity Gallons	Dimensions		200-lb. Test 85-lb. Water Pressure	250-lb. Test 106-lb. Water Pressure	300-lb. Test 127-lb. Water Pressure
	Diameter Inches	Length Feet			
25	11 3/8	4 3/4	$ 30.00	$ 35.00	$ 45.00
30	12	5	36.00	42.00	54.00
40	14	5	48.00	56.00	72.00
50	16	5	60.00	70.00	90.00
60	17	5	72.00	84.00	108.00
70	18	5	84.00	98.00	126.00
80	20	5	96.00	112.00	144.00
100	20	6	120.00	140.00	180.00
125	22	6	150.00	175.00	225.00
150	25	6	180.00	210.00	270.00
200	30	6	240.00	280.00	360.00
250	30	7	300.00	350.00	450.00
300	35	6	360.00	420.00	540.00
350	35	7	420.00	490.00	630.00
400	35	8	480.00	560.00	720.00
450	35	9	540.00	635.00	810.00
500	35	10	600.00	700.00	900.00
600	36	12	720.00	840.00	1080.00
700	42	10	840.00	980.00	1260.00
800	42	11 ft. 6 in.	960.00	1120.00	1440.00
950	48	10	1080.00	1270.00	1620.00
1000	48	11	1200.00	1400.00	1800.00

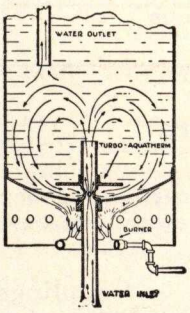
*All boilers listed above can be equipped with the Aquatherm heating element at additional cost.

Note—Above prices are list and are subject to trade discount.

Dahlquist Copper Automatic Water Heaters



Gas Fired
Sidearm Type



The Turbo-Aquatherm

(U. S. Patent No. 1,762,215 June 10th, 1930)

The TURBO-AQUATHERM takes advantage of the velocity of the incoming cold water to create a suction and a whirl which constantly sweeps and scours the bottom of the boiler, carrying every particle of foreign matter out of the system.

No sediment can ever accumulate in the Dahlquist TURBO-AQUATHERM Copper Boiler and the water is always as fresh as that in the cold water lines and may be safely used for cooking as well as for other household purposes.

Furthermore, the danger of burnouts in automatic storage and underfired systems is eliminated and the thermal efficiency of the boiler is greatly increased.



Electric

Construction Features

Insulation: The jacket is constructed of an outer and an inner shell between which is a thick layer of asbestos insulation. The jacket holds the heat in the water which is stored in the boiler.

Fuel Space: The insulating jacket is made larger than the boiler, allowing for a sufficient flue space for the escape of the combustion gases. This flue space also acts as a further insulation as well as an additional area of heat transmission when the gas is burning below the boiler.

Copper Boiler: The heavy gauge boiler of Rustless Anaconda Copper makes the Dahlquist a most satisfactory and trouble-free hot water storage system.

Thermostat: The Thermostat operates perfectly to keep the temperature of the water at the correct point at all times.

Head: The Patented Head acts exactly as in a coffee percolator. The hot water formed by the flame underneath the bottom of the boiler passes through a brass tube immediately to the top of the tank from which it is drawn in bath, laundry or kitchen. Thus the hottest water is always immediately available.



Gas Underfired

Gas Burner: The gas burner is of a design to throw a concentrated intense heat against a small area of the bottom of the boiler directly beneath the head. This quickly heats the water, which passes up to the top of the boiler through the tube.

Made in Three Sizes

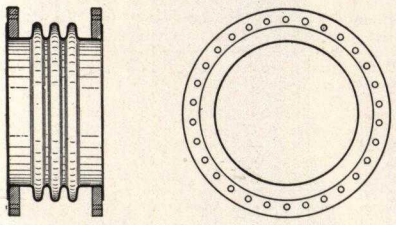
List prices Underfired and Sidearm

Capacity Gallons	List with Gas Burner	Electric
20	$110.00	$125.00
30	150.00	175.00
40	200.00	225.00

Fully guaranteed

Dahlquist Corrugated Copper Expansion Joints

Made of the finest quality Lake copper. The deep corrugations afford the elasticity and strength necessary to withstand constant changes due to fluctuating temperatures. The joints are made in 3 corrugations. They are simple in construction, built for durability and are safe, compact and efficient. Made in any size required and to meet customers' specifications. When ordering, state size of pipe, working pressure, amount of expansion required, and whether pipe conveys air, steam, water or gas.



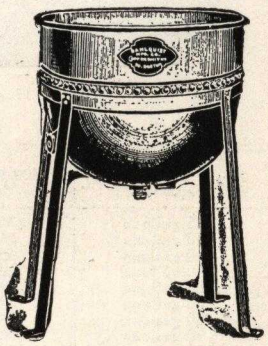
Corrugated Copper Expansion Joint

Dahlquist Steam Jacketed Copper Kettles

Made with extra heavy copper bottoms, on wrought iron legs.

Capacities and Sizes

Cap. Gal.	Diam. In.	Depth In.	Cap. Gal.	Diam. In.	Depth In.
3	13	8	25	24	18
4	14	9	30	25	20
5	14	11	35	28	18
6	15	11½	40	30	19½
7	15	13	50	32	20
8	16	13	60	33	24
9	17	13	75	35	24
10	17	14	100	38	28
12	17	16	125	40	30
15	19	16	150	40	36
18	20	18	200	45	39
20	22	18	.....	.....	.....



Steam Jacketed
Copper Kettle

H. GERSTEIN & SONS BOSTON, MASS.

Main Office and Plant: 205-211 West First Street

New York Office: 511 Fifth Avenue

Gerstein Copper Boilers

Gerstein Copper Boilers are made from sheet copper. Seam of shell is brazed and hard hammered. All seams and connections are sweat and soldered.

Standard boilers are constructed and tested to 200, 250 and 300 pounds hydrostatic test and are capable of standing a working pressure of 42.5% of the test pressure.

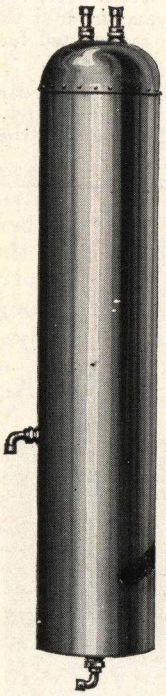
We also manufacture a boiler for cistern pressure service capable of standing a pressure corresponding to a head of 30 feet of water.

We have steadily built up a reputation as experts in every phase of the manufacture of COPPER RANGE BOILERS and STORAGE TANKS.

The quality of our product is never questioned, being built on knowledge and good faith.

Boilers and tanks are made entirely of heavy gauge copper—head, shell and bottom—All sizes are heavily RIVETED.

The creative skill, practical experience and sound judgment of two generations of boiler makers guide the destiny of this business. We have an enviable reputation to guard and we do it zealously.



Being so equipped we actually do produce high quality at low cost. GERSTEIN boilers and tanks are the cheapest in the end because they are made right in the beginning.

We manufacture all sizes, from a 5-gallon barber boiler to a 5,000-gallon storage tank. Made in 200 pounds, 250 pounds, 300 pounds and 400 pounds hydrostatic test pressures and higher, according to requirements.

Our engineering department is ready to cooperate with you on sketch and other special work.

Couplings Furnished

Unless otherwise ordered, all couplings on boilers 12-inch and 14-inch diameter are threaded ¾-inch Iron Pipe Size male. Couplings threaded ½-inch Iron Pipe Size female, or ¾-inch Fine Thread female furnished if desired. Boilers over 14-inch diameter are furnished with female tappings.

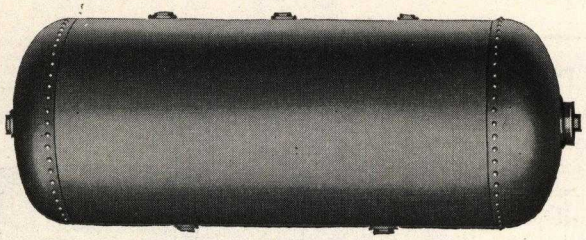
Connections can also be furnished consisting of short straight spuds only with taper female threads in all sizes from ½-inch. This type of connection is generally used on Horizontal Boilers. If spud connections are ordered in a size too large in proportion to the capacity of the boiler, an extra charge will be made, but in sizes proportionate to the capacity of the boiler are furnished without extra charge. Storage Tanks can be made in any size desired.

Gerstein Copper Storage Tanks with Removable Steam Coils

Coils are made to specification, depending on size of boiler, amount of water stored, temperature, size required, etc.

Boiler is constructed so that coils can be removed at any time should it be necessary to do so. All the tanks are fitted with manholes.

Storage Heaters with removable coils are made in same sizes as the ordinary storage tanks. Prices quoted on application.

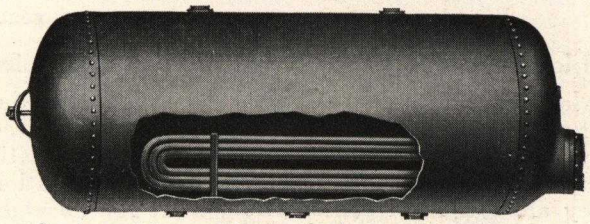


Horizontal Storage Tank

Range Boilers

Capacity	200-Pound Test	250-Pound Test	300-Pound Test
25 gallons	$30.00	$35.00	$45.00
30 gallons	36.00	42.00	54.00
40 gallons	48.00	56.00	72.00
50 gallons	60.00	70.00	90.00
60 gallons	72.00	84.00	108.00
70 gallons	84.00	98.00	126.00
80 gallons	96.00	112.00	144.00
90 gallons	108.00	126.00	162.00
100 gallons	120.00	140.00	180.00

These Boilers furnished with OLD-style, NEW-style, 3-side and special tappings on specification.



Service and Storage Heater with Removable Heating Coil

Storage Tanks

Capacity	200-Pound Test	250-Pound Test	300-Pound Test
125 gallons	$150.00	$175.00	$225.00
150 gallons	180.00	210.00	270.00
175 gallons	210.00	245.00	315.00
200 gallons	240.00	280.00	360.00
225 gallons	270.00	315.00	405.00
250 gallons	300.00	350.00	450.00
275 gallons	330.00	385.00	495.00
300 gallons	360.00	420.00	540.00
350 gallons	420.00	490.00	630.00
400 gallons	480.00	560.00	720.00
450 gallons	540.00	635.00	810.00
500 gallons	600.00	750.00	900.00

Larger sizes on application

HAMBURG BOILER WORKS, INC.

HAMBURG, PA.

Member of the American Boiler Manufacturers Association

Berks County

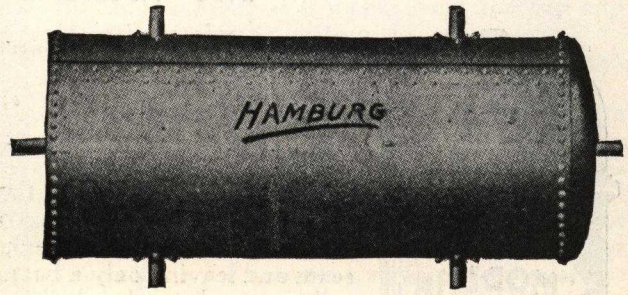
Hamburg Hot Water Storage Tanks

Hamburg Tanks are made of Flanged Steel, 55,000 tensile strength, double riveted longitudinal seams, single riveted girth seams. Heads machine flanged and dished. All outlets for ¾-inch pipe and larger are reinforced and tapped. Every Hamburg Tank is inspected and tested before shipment to 150 per cent of the working pressure.

Standard Tank 65 pounds working pressure.

Extra Heavy Tanks 100 pounds working pressure.

Furnished Galvanized both inside and outside by the Hot Dip Process, at extra charge.

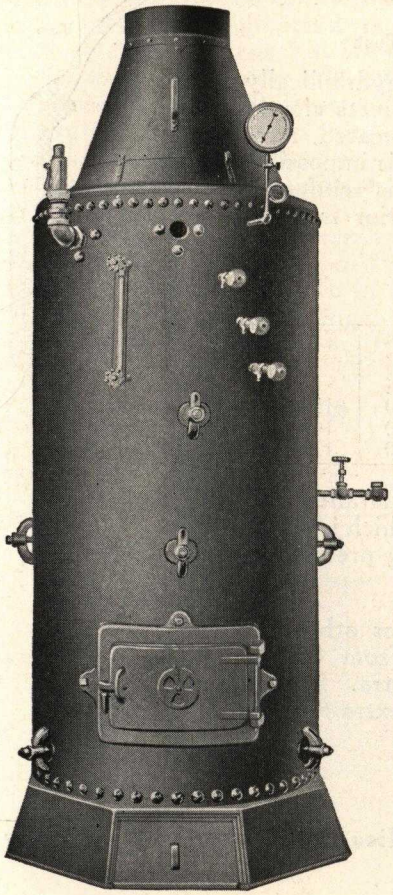


STANDARD				EXTRA HEAVY			
Size	Capacity Gallons	Weight Pounds	List Price	Size	Capacity Gallons	Weight Pounds	List Price
20 inches x 5 feet	82	345	$63.00	20 inches x 5 feet	82	345	$63.00
24 inches x 5 feet	117	421	71.00	24 inches x 5 feet	117	421	71.00
24 inches x 6 feet	141	472	76.00	24 inches x 6 feet	141	472	76.00
30 inches x 6 feet	221	604	89.00	30 inches x 6 feet	221	604	89.00
30 inches x 8 feet	294	750	105.00	30 inches x 8 feet	294	750	105.00
36 inches x 6 feet	318	750	109.00	36 inches x 6 feet	318	940	119.00
36 inches x 8 feet	424	925	128.00	36 inches x 8 feet	424	1160	141.00
42 inches x 7 feet	504	1000	141.00	42 inches x 7 feet	504	1460	171.00
42 inches x 8 feet	572	1100	152.00	42 inches x 8 feet	572	1610	184.00
42 inches x 10 feet	716	1310	174.00	42 inches x 10 feet	716	1935	211.00
42 inches x 14 feet	1007	1715	220.00	42 inches x 14 feet	1007	2700	287.00

Hamburg Vertical Tubular Boilers

A. S. M. E. Code Specifications 100 Pounds Steam

For Vulcanizers, Creameries, Bakeries, Butchers, Laundries, Dyeing and Cleaning Plants, Greenhouses, Bottling and Canning Plants and other industries requiring a Powerful Boiler that can be operated in a small space.



Number of Size	1	2	3	4	5	6	7	8	9	10	11	12
Horse-power old rating	2	2½	3	4	5	6	8	10	12	13	15	18
Horse-power code rating	1.4	1.8	2.2	2.7	3.4	4.2	5.2	6.8	8.5	10	11.5	12.7
Inside Diameter of Boiler, inches	20	20	20	24	24	24	30	30	30	36	36	36
Height of Boiler, in feet	3	3½	4	4	5	6	5	6	7	6	6½	7
Outside Diameter of Furnace, inches	17	17	17	20	20	20	25	25	25	31	31	31
Height of Furnace, inches	18	18	18	24	24	24	27	27	27	27	27	27
Thickness of Shell, inches	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	9/32	9/32
Thickness of Heads, inches	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Thickness of Furnace Plate	5/16	5/16	5/16	5/16	5/16	5/16	5/16	5/16	5/16	11/32	11/32	11/32
Length of Tubes, inches	18	24	30	24	36	48	33	45	57	45	51	57
No. of Tubes, 2-inch diameter	16	16	16	24	24	24	44	44	44	68	68	68
Water Heating Surface	14	18	22	27	34	42	52	68	85	100	115	127
Total Heating Surface	20	24	28	37	49	62	80	103	126	155	173	190
Diameter of Stack	8	8	8	10	10	10	14	14	14	15	15	15
Size Steam Opening, inches	1	1	1	1	1	1	1½	1½	1½	2	2	2
Size Pop Safety Valve Opening	¾	¾	¾	1	1	1	1½	1½	1½	2	2	2
Height of Boiler Base, inches	8	8	8	8	8	8	9	9	9	10½	10½	10½
Height of Boiler Hood, inches	8	8	8	20	20	20	24	24	24	26	26	26
Weight of Boiler only	586	631	686	1024	1136	1275	1566	1760	1956	2369	2462	2559
Weight of Boiler Fixtures	200	200	200	300	300	300	400	400	400	500	500	500
Area of Grate	1.22	1.22	1.22	1.76	1.76	1.76	2.88	2.88	2.88	4.58	4.58	4.58

Number of Size	13	14	15	16	17	18	19	20	21	22	23	24
Horse-power old rating	20	25	30	35	40	45	50	60	70	80	100	125
Horse-power code rating	15.3	16.7	20.4	24	29.5	32	37.3	42.4	48.9	55	78.9	100
Inside Diameter of Boiler, inches	36	42	42	42	48	48	48	54	54	54	60	66
Height of Boiler, in feet	8	7¼	8¼	9¼	8½	9	10	9	10	11	12	14½
Outside Diameter of Furnace, inches	31	37	37	37	43	43	43	49	49	49	55	60
Height of Furnace, inches	27	27	27	27	30	30	30	30	30	30	30	36
Thickness of Shell, inches	9/32	5/16	5/16	5/16	5/16	5/16	5/16	11/32	11/32	11/32	3/8	13/32
Thickness of Heads, inches	3/8	3/8	3/8	3/8	7/16	7/16	7/16	7/16	7/16	7/16	1/2	1/2
Thickness of Furnace Plate	11/32	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Length of Tubes, inches	69	60	72	84	72	78	90	78	90	102	114	120
No. of Tubes 2-inch diameter	68	88	88	88	128	128	128	172	172	172	216	256
Water Heating Surface	153	167	204	240	295	320	373	424	489	550	789	1000
Total Heating Surface	226	257	303	349	437	470	537	626	716	806	1121	1401
Diameter of Stack	15	18	18	18	20	20	20	24	24	24	28	28
Size Steam Opening, inches	2	2½	2½	2½	3	3	3	3	3	3	3½	5
Size Pop Safety Valve Opening	2	2½	2½	2½	3	3	3	2–2	2–2	2–2	2–2½	2–3
Height of Boiler Base, inches	10½	11½	11½	11½	12½	12½	12½	13	13	13	13½	18
Height of Boiler Hood, inches	26	26	26	26	26	26	26	26	26	26	32	32
Weight of Boiler only	2832	3512	3887	4365	5138	5391	5866	6673	7289	7960	10348	14100
Weight of Boiler Fixtures	500	700	700	700	900	900	900	1200	1200	1200	1600	1700
Area of Grate	4.58	6.68	6.68	6.68	9.16	9.16	9.16	12.04	12.04	12.04	15.32	18.35

Fittings and fixtures are base, stationary grates for burning Anthracite buckwheat coal, sheet steel cone hood, steam gauge and brass syphon, pop safety valves, 3 gauge cocks, blow-off valve, water gauge, check and feed valve, tube brush, injector and injector valve.

HAYES MANUFACTURING CO. PATERSON, N. J.

31 McBride Avenue

The "Modern" Copper Range Boiler

In full accord with Massachusetts Laws.



30 and 40 Gallons

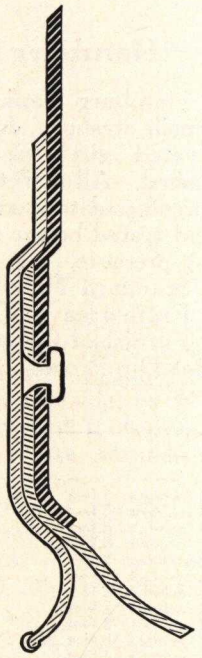
"Modern"

30 and 40 Gallons **200 and 300 Pound Test**

In the above capacities the top and body of the "Modern" Boiler is formed from a single extra-heavy Copper Shell and drawn cold-seamless to the bottom, thus eliminating the top joint and the side seam and leaving only a bottom joint. The bottom head is hydraulically pressed on the shell and riveted securely with Copper Rivets closely spaced. Over the rivets a seamless copper band is spun and sweated, reinforcing the joint and making a solid construction which is impossible to come apart under any circumstance. Every boiler is reinforced internally and guaranteed against collapse. The interior is thoroughly tinned.

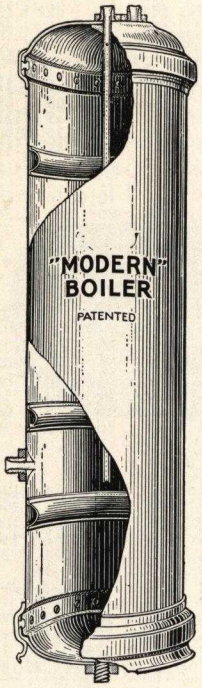
Price List—Vertical or Horizontal—Drawn Cold-Seamless

Capacity, Gallons	30	40
Height, Inches	60	61
Diameter, Inches	12	14
Price, 200 Pound Test	$45.00	$58.00
Price, 300 Pound Test	50.00	64.00



BOTTOM

Section showing connection of lower head to shell of the "Modern" Pat. Boiler.



50, 60, 80 and 100 Gallons

"Modern"

50, 60, 80 and 100 Gallons—200, 250 and 300 Pound Test

These sizes are made with top and bottom heads hydraulically pressed on the shell and securely riveted with copper rivets closely spaced. Over the rivets a copper band is spun and sweated, reinforcing the joint and making a solid construction which is impossible to come apart under any circumstance. Every boiler is reinforced internally and guaranteed against collapse. The interior is thoroughly tinned.

Price List—Vertical or Horizontal

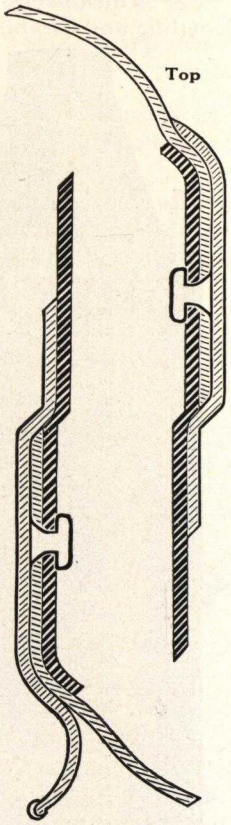
Capacity, Gallons	50	60	80	100
Height, Inches	61	61	61½	62
Diameter, Inches	15½	17½	19¼	21½
Price, 200 Pound Test	$70.00	$90.00	$115.00	$150.00
Price, 250 Pound Test	75.00	95.00	125.00	160.00
Price, 300 Pound Test	85.00	105.00	140.00	175.00

Before leaving our factory each "Modern" Boiler is guaranteed to have been tested to the pressure stamped on the boiler, which is either 200, 250 or 300 pounds, and recommended for a working pressure of 42½ per cent of the test pressure.

All couplings furnished for ¾-inch I. P. Male, unless otherwise ordered. From 30-60 gallons, ¾-inch is standard. From 80-100 gallons, 1-inch is standard. Larger couplings charged extra. Boilers with High and Low Side Connections furnished without extra charge.

NO IRON USED IN CONSTRUCTION

For Sale by Wholesalers of Plumbers' Supplies



BOTTOM

Section showing connection of lower head to shell of the "Modern" Pat. Boiler.

NATIONAL STEEL CONSTRUCTION COMPANY

Main Office: 425 Frontenac Street, SEATTLE, WASH.

Products

"National" Range Boilers in both Standard and Extra-heavy Types.
"National" Range Boilers with Coils.
"National" Hot Water Expansion Tanks.
"National" Steel Septic Tanks.
"National" Storage Tanks.

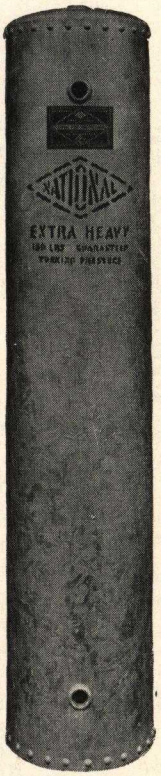
Regular sizes, Standard and Extra Heavy, black and galvanized.

Standard guaranteed for 65 pounds working pressure. Extra Heavy guaranteed for 100 pounds working pressure.

"National" Double Circulating Tanks.

Regular sizes, guaranteed for 150 pounds working pressure.

Furnished either all black or outer tank black and inner tank galvanized.



"National" Range Boilers

"National" Boilers are especially designed and built to meet the requirements of high pressures.

"National" Range Boilers are constructed in both the Standard and the Extra Heavy Types.

Construction—The *"National"* product is built of blue annealed steel of high tensile strength. All seams in heads, sides and bottoms are riveted and welded for maximum strength and absolute tightness. Heads and bottoms are of heavy construction to stand high pressures. Spuds are not malleable iron castings, but are steel forgings. Galvanized thoroughly inside and outside with pure zinc. Subjected to hydrostatic test of double its working pressure. All diameters are inside diameters. All lengths are lengths on shells.

Regular Tappings—Vertical range boilers of all grades are tapped straight by specially designed tapping machine. Standard tappings are for 1-inch pipe size. Boilers regularly tapped with two in the head, one in the bottom, and two in the shell, as follows:

Regular Duo-tap is the designation when the shell tapping is 6 inches from the top and 6 inches from the bottom.

National Duo-tap is the designation when the shell tapping is 6 inches from the top and 18 inches from the bottom.

Special Tapping—Openings of any size and at any location may be had on special order.

Guarantee—Standard and Extra Heavy Range Boilers are guaranteed against defects in material and workmanship up to the time of installation and test.

Absolutely guaranteed up to 85 pounds hydrostatic pressure on Standard boilers and 150 pounds pressure on Extra Heavy boilers.

Sizes and Capacities

Diam. Inches	Height In.	Nominal Capacity Gallons	List Price Each	Diam. In.	Height In.	Nominal Capacity Gallons	List Price Each
12	36	18	$14.50	18	60	66	$38.00
12	48	24	15.75	20	60	82	45.50
12	60	30	19.00	22	60	100	63.50
14	48	32	21.00	24	60	120	72.50
14	60	40	24.00	24	72	144	103.00
16	48	42	26.00	24	96	192	132.00
16	60	52	31.00				

"National" Range Boilers with Coils

Where coils in boilers are desired, the *"National"* line gives a complete selection. *"National"* boilers may be obtained in any combination of tappings and with coils of standard lengths or special coil arrangements.

Hot Water Expansion Tanks

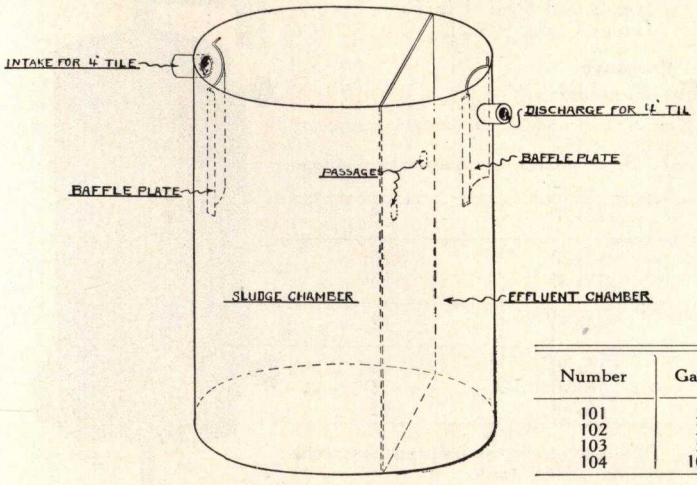
These tanks are designed particularly for taking care of the expansion of hot water in heating systems or for any hot water storage purpose not operating under pressure.

They are not designed for use as pressure tanks and their guarantee of workmanship and material does not cover a pressure guarantee.

Vent pipe, expansion pipe, and water supply openings are tapped regularly for 1-inch pipe connections. Water gauge openings are ½-inch tap on 13½-inch centers. No fittings.

Sizes in Inches	Capacity Gallons
10 x 20	8
12 x 20	10
12 x 30	15
14 x 30	20
14 x 36	24
16 x 30	26
16 x 36	32
16 x 48	42

"National" Steel Septic Tanks



The *"National"* Septic Tank is designed to take care of the sewage problem in districts where there are no sewers. It is built of a special rust-resisting alloy steel, further protected with a special asphalt enamel both inside and outside, which is unaffected by acids, moisture or soil. This coating absolutely insures durability.

The use of an iron tank for sewage has been made possible by the perfecting of the process of proofing the tank against rust, using an asphalt enamel, applied at a high temperature while the tank is hot. The principle of septic action requires a storage tank in which the liquid is as quiet as possible for a given period.

It is built in sizes to suit the home, school or factory.

Sizes:

Number	Gallons	Diameter Inches	Depth Inches
101	200	38	48
102	300	47	48
103	500	52	60 length
104	1000	60	96 length

L. O. KOVEN & BROTHER, INC. JERSEY CITY, N. J.

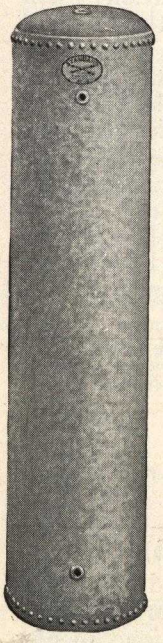
New Jersey Phone—Webster 4-8600
New York Phone—Rector 2-2336

Established 1881

TRADE MARK
L.O.K. & BRO. INC.

Incorporated 1924

Main Office and Factory
154 Ogden Avenue



New Style

Range Boilers

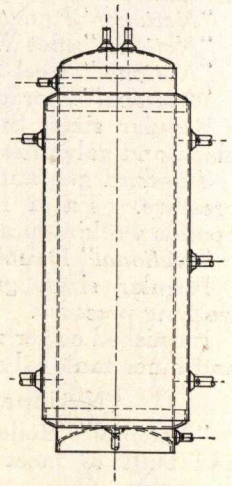
Vertical		Horizontal	
Size, Inches	Capacity, Gallons	Size, Inches	Capacity, Gallons
12x36	18	10x34	11
12x48	24	10x36	12
12x60	30	12x34	17
14x48	32	12x36	18
14x60	40	12x42	21
16x48	42	14x34	22
16x60	52	14x36	24
18x60	66	14x40	27
20x60	82	14x42	28
22x60	100		
24x60	120		
24x72	144		
24x96	192		

Rivet-Weld and Welded Water Working Pressure—
Standard—85 pounds
Extra Heavy—150 pounds
Double Extra Heavy—150 pounds
Taps—1-inch

"KOVEN" Jacketed Range Boilers

Economical

This method has proved most satisfactory for domestic hot water supply and is especially adaptable for oil burner installations.



Dependable

A steady and uninterrupted supply of hot water is always available.

Lasting

These boilers are constructed of double extra heavy galvanized steel.

Tapped for Vertical or Horizontal Installation.

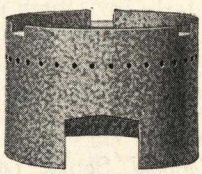
Sizes 30 to 120 gallons.

Barber Boilers

Size, Inches	Capacity, Gallons	Size, Inches	Capacity, Gallons
9x16	4	12x10	5
9x20	5	12x20	10
10x20	8	14x20	12



Taps—1-Inch



Working Pressure 85 Pounds

Pneumatic Tanks

Size Inches	Capacity, Gallons	Size, Inches	Capacity, Gallons
16x48	42	30x60	180
16x60	52	30x72	220
18x48	53	30x84	250
18x60	66	30x96	300
20x60	82	30x120	365
22x60	100	36x72	315
24x60	120	36x96	420
24x72	144	36x120	525

Working Pressure—75 Pounds.
Type A—For Gauge Glass.
Type B—For Automatic Air Volume Control.
Made in Vertical and Horizontal styles.

Galvanized Steel Scullery Sinks



All Sizes to order for prompt shipment.

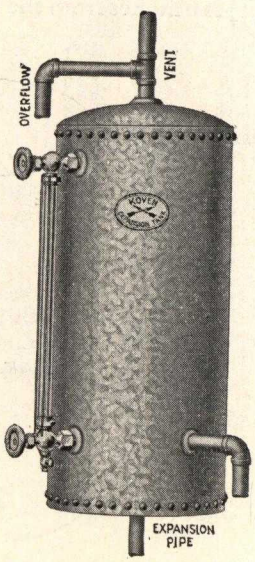
Made in Steel, Monel, Allegheny or other alloys of 14 gauge or heavier.

Expansion Tanks

Taps
Heads and Shell, 1 inch.
Gauge Glass, ½ inch.

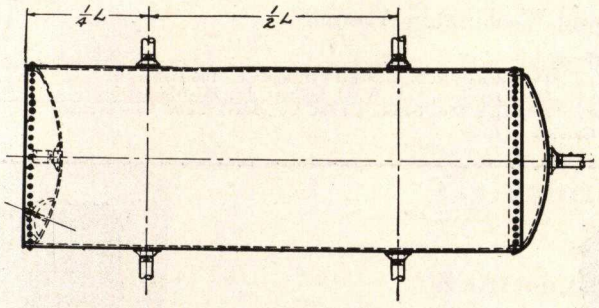
Pressure
20 pounds.

Size, Inches	Capacity, Gallons
10x20	8
12x20	10
12x30	15
14x30	12
16x30	26
16x36	32
16x48	42



We also stock the painted basement type expansion tanks.

Storage Tanks



Taps

Tank Diameter, Inches	Size Taps, Inches
20—24	1½
30—36—42	2
48—54—60	3

In Stock for Immediate Delivery
All sizes from 85 to 1500 gallons.

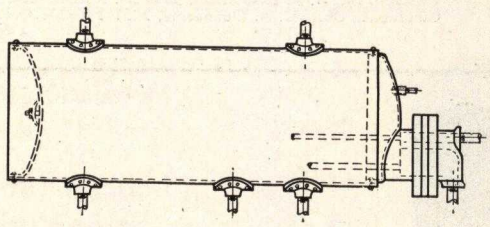
To Order
Tanks up to 4000 gallons, for prompt shipment.

Construction
Rivetweld and Welded up to ½" thickness.

Pressures
Standard—75 pounds.
Extra Heavy—100 pounds.
Higher Pressures to order.

Government Type Tanks

(Horizontal)



Types: H —Tank without Removable Coil
HP—Tank with Removable Coil

Coils
Tanks Fitted with Stationary and Removable Coils.
For Domestic and Industrial Use.

Tanks Welded on the Job

Special Tanks
Cylindrical, Rectangular and Special Shapes to Order, for Water, Oil, Air, Gasoline, etc.

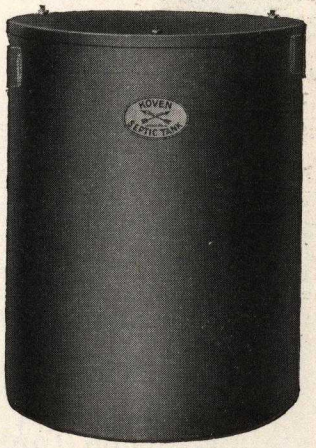
Septic Tanks

Vertical Type Tanks

Capacity Gallons	Diameter Inches	Depth Inches	Rating—Number of Persons			
			Home	Hotel	School	Factory
200	38	48	6	8	12	10
300	48	48	10	14	20	16

Horizontal Type Tanks

Capacity, Gallons	Diameter Inches	Length Inches	Rating—Number of Persons			
			Home	Hotel	School	Factory
300	38	60	.....	12	16	15
490	38	95	.....	20	26	24
740	48	95	.....	30	42	37
980	48	142	.....	40	55	48
1500	64	108	.....	70	90	80
2000	64	142	.....	90	120	100
2500	64	178	.....	115	150	130
3000	64	214	.....	135	180	160



Catalog Sent on Request

A valuable "Plumbers' Hand Book" giving full descriptive data on the following Products will be gladly furnished upon request:

Barber Boilers
Brackets (Range Boiler)
Expansion Tanks
Fuel Oil Tanks
Hangers (Tank)
Pneumatic Tanks
Range Boilers
Saddles (Tank)
Septic Tanks
Sinks (Galvanized Scullery)
Stands (Tank)
Storage Tanks (Water, Fuel, Oil, Government, Etc.)

Galvanizing for the Trade

PENNSYLVANIA RANGE BOILER CO. PHILADELPHIA, PA.

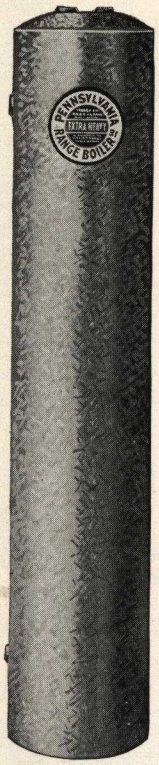
General Office and Plant—24th and Washington Avenue

Branch Sales Offices

Birmingham, Ala., W. T. Mayfield, 1910 Webb-Crawford Bldg.
*Chicago, Ill., A. A. Redderson, 3440 So. Racine Ave.
Cincinnati, Ohio, C. A. Ducharme, 3451 Trimble Ave.
*Providence, R. I., General Fittings Co., 100 Baker St.
San Francisco, Cal., W. H. Gilbert, Jr., 557 Market St.
*St. Louis, Mo., Sanitary Dist. Co., Market and Vandeventer.

*Warehouse Stocks Carried

Galvanized Range Boilers

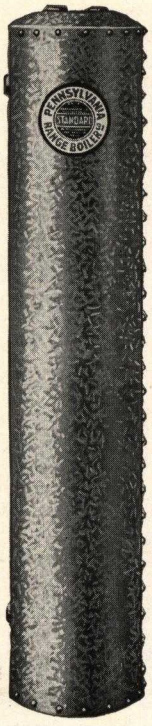


STANDARD GRADE
All Welded Boiler

Made in the following

Weight	Test Lb.	W.P. Lb.	Guarantee
Standard	200	87.5	Tight on Installation
X. Heavy	250	106	Tight on Installation
D.X. Heavy	300	127.5	6 Yr. Service Basis

All Steel Three Types



STANDARD GRADE
Riveted and Welded Boiler

Made in the following

Weight	Test Lb.	W.P. Lb.	Guarantee
Standard	200	87.5	Tight on Installation
X. Heavy	250	106	Tight on Installation
D.X. Heavy	300	127.5	6 Yr. Service Basis



PHILADELPHIA GRADE
Malleable Head Boiler

Made in the following

Weight	Test Lb.	W.P. Lb.	Guarantee
X. Heavy	250	106	5 Yr. Service Basis
D.X. Heavy	300	127.5	7 Yr. Service Basis
Springfield	350	148	7 Yr. Service Basis

Note—The Standard Grade All Welded Boiler is also made in Copper "Everdur" Metal.

Also

Expansion Tanks
Basement Tanks
Horizontal Storage Tanks
Pneumatic Tanks
Coil Boilers
Water Heaters

5 Quality Points

1. *All Openings in Head, Shell and Bottom are Driven Malleable Iron Bushings for Strength.*
2. *All Shell Seams are Crimped along the Meeting Edges before Rolling.*
3. *All Steel Heads are Lapped in and Welded on Top of the Head.*
4. *All Boilers are Galvanized to U. S. Standard Specifications.*
5. *All Boilers are Hydrostatically Tested To* **Actual Maximum Pressures as Rated**

"General-Penn" Tank

Submerged Type Indirect Storage Water Heater



A Storage Tank and Heater combined in one unit. Copper coil is flange and bolt mounted into end of tank and completely removable. Installed with low head room.

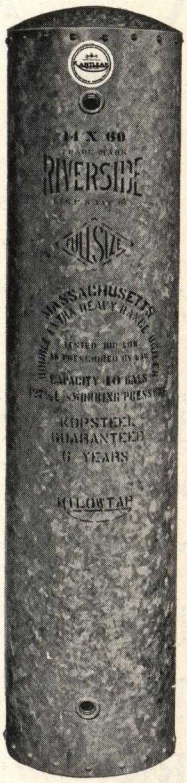
PRICE SHEETS on any of the above items will be mailed on request

RIVERSIDE BOILER WORKS, INC. CAMBRIDGE, MASS.

General Offices and Factory—50 Harvard Street

Founded 1889 — New York Office—11 West 42nd Street — Incorporated 1913

KANTLEAK



"Kantleak"
40 Gallon

Galvanized Range Boilers

Two Types

"Kantleak" Riveted and Welded
"Victory" Electrically Welded

Both Types made in all Sizes

STANDARD:—85 Pounds Working Pressure
EXTRA HEAVY:—150 Pounds Working Pressure
DOUBLE EXTRA HEAVY—"Kopsteel"—150 Pounds Working Pressure

Kopsteel Boilers Guaranteed 6 years. *Credit based on service period.*

Massachusetts Regulation Boilers in Standard, Extra Heavy and Double Extra Heavy Types

All boilers are full size; "Hilowtap" openings: two 1-inch in head; one 1-inch in bottom; two 1-inch on side respectively 6-inch down and up on the shell. All diameters are inside diameters. All lengths are lengths on shell.

Size Inches	Nominal Capacity Gallons	List Price	Size Inches	Nominal Capacity Gallons	List Price
12 x 36	18	$14.50	18 x 60	66	$38.00
12 x 48	24	15.75	20 x 60	82	45.50
12 x 60	30	19.00	22 x 60	100	63.50
14 x 48	32	21.00	24 x 60	120	72.50
14 x 60	40	24.00	24 x 72	144	103.00
16 x 48	42	26.00	24 x 96	192	132.00
16 x 60	52	31.00			

Expansion Tanks—All Welded—Furnished in all sizes

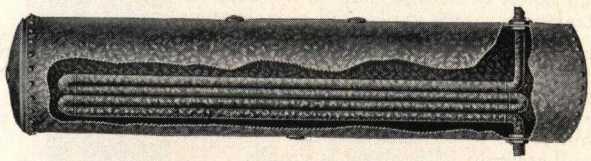
Also Basement Expansion Tanks



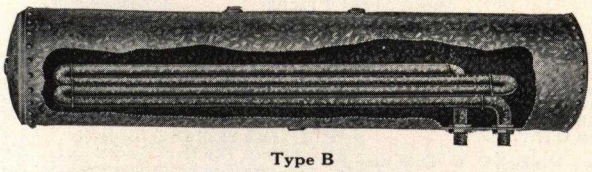
"Victory"
30 Gallon
All-Welded

Types of "Riverside" Range Boilers with Steam Coils

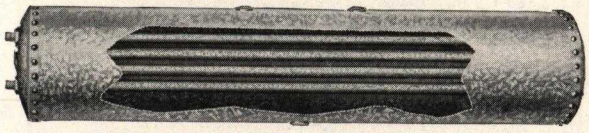
"Kantleak" and "Victory"



Type A



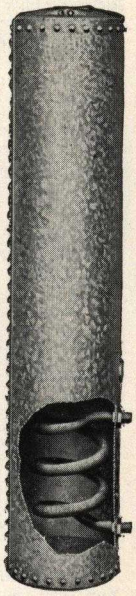
Type B



Type C

Boilers are furnished with vertical or horizontal coils in Extra Heavy and Double Extra Heavy weights only. In ordering, specify whether you wish vertical or horizontal coil, what type is wanted, and whether coil is to be galvanized iron, brass or copper. Unless otherwise specified, horizontal coil boilers will be furnished as per Type C. Coils are furnished at an additional price to the boiler itself.

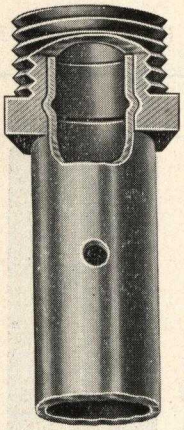
Send for circulars describing and giving sizes and prices on Septic Tanks, Indirect Heaters and Pneumatic Tanks



Vertical Coil
Boiler

For Riverside Heaters, See Pages 692 and 693

GERARD MANUFACTURING CO. DICKSON CITY, PA.



Gerard Plumbing Products

Gerard Standard Brass Boiler Tubes

Patented 7-16-27

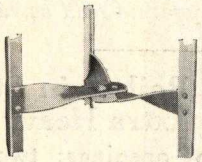
Made of Admiralty Brass Tubing, with the threaded bushing attached in a manner that will hold tight under all conditions. 15 years on the market, the original brass boiler tube.

Made in ½ and ¾-inch I. P. S. sizes. 4 feet and 4 feet and 6-inches long. Special sizes made to order.

	List Price
Size ½ inch x 4 feet	$0.70
Size ½ inch x 4 feet 6 inches	.80
Size ¾ inch x 4 feet	1.50
Size ¾ inch x 4 feet 6 inches	1.70

Gerard 3-Piece Steel Range Boiler Stand

Light, neat and strong. Practically unbreakable. Folds up. Needs very small storage space. Held together by one bolt. A time and trouble saver. Made in three sizes. All three numbers made 8, 10 and 12-inch high. Furnished plain, black and galvanized.



		List Price
No. 1 for 12 and 14-inch boilers	8-inches high	$ .40
	10-inches high	.50
	12-inches high	.60
No. 2 for 16 and 18-inch boilers	8-inches high	2.25
	10-inches high	2.50
	12-inches high	2.75
No. 3 for 20, 22 and 24-inch boilers	8-inches high	3.30
	10-inches high	3.60
	12-inches high	4.00

Gerard Adjustable Boiler Stand



This stand is made of steel ring and side arms with a heavy cast iron base. Adjustment is made by using the desired length 1¼-inch nipple between yoke and base. A satisfactory product that will meet all conditions. Made to fit underneath 12, 14 and 16-inch range boilers. Light and strong. Setting height about 10 inches from floor. List Price—12,14 and 16-inch boiler..$1.50

Asbestoseal

A closet setting wax, for making an absolutely gas and water tight joint between closet bowls and the floor flange. Far superior to putty or any of the other methods used for this purpose.

Easy to use. Makes an absolutely dependable job. Guaranteed to hold tight under all conditions. Is very elastic and will not harden or crack. Always dependable, especially where smoke test is to be applied. Also a very satisfactory material for applying on the under side of basin, bath, and sink waste plugs, basin faucet flanges and the like. Makes a neat water-tight joint, very quick and easy to use.

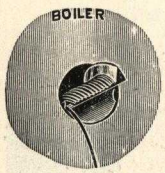
A great time saver. Approved and recommended by many Plumbing Inspectors and Plumbers everywhere. Furnished in a neat tube, generous size, of sufficient amount to do the ordinary bathroom job, including the basin, bath and sink waste plugs, basin faucets and closet bowl floor flange. List Price, per box....$0.75

JOHN H. TAYLOR NEW YORK

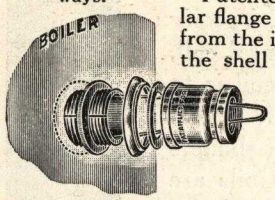
9344—215th Place, Queens Village

Ideal Boiler Spuds

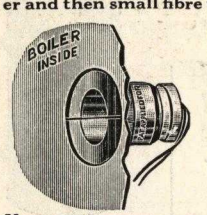
Patented



Inserting Spuds Take both halves—drop in sideways.



Slip over large packing washer, then brass expansion washer and then small fibre washer.



You can screw up coupling until it comes to a solid stop

Ideal Boiler Spuds assure an easy, economical and reliable means of installing Gas or Indirect Water Heaters.

The spud consists of two halves and when registered with each other consists of a full and complete circular flange with a threaded stem, together with two gaskets, a brass packing ring and a brass coupling. These connections are made of brass.

Patented Features—Full and complete circular flange (flanged nipple), which holds the spud from the inside of the boiler and which reinforces the shell around the hole AT ALL POINTS.

The brass packing ring or expansion washer, which is self-seating and which will shape itself to conform to the exact surface of the boiler, when pressure is exerted, by screwing up the coupling.

The flange is convexed to meet the inside curvature of the boiler and the brass packing ring is concaved to the outside curvature.

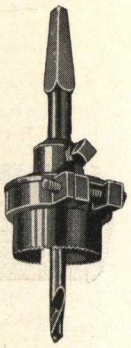
Contact is made by this convexed flange and concaved packing ring, which gives a positive reinforcement of the boiler shell AT ALL POINTS.

List Prices

½-inch, in sets of 2, per set	$1.60
¾-inch, in sets of 2, per set	1.60
1 -inch, in sets of 2, per set	1.70
1¼-inch, not packed in sets, each	2.00
1½-inch, not packed in sets, each	2.00
1 -inch Thermostat Coupling, each	.90

Ideal Shell Drills

Patented



The Ideal Shell Drill cuts clean and finished round holes in Steel, Sheet Metals, Cast Iron, Slate, Wood, Plaster, Fiber and Bakelite. Marble and Tile may be easily cut with use of abrasives.

The Ideal Tap Drill cuts, clear round holes through metal to fit pipe size taps. Used for tapping boilers, furnaces, tanks, soil pipe, heaters, etc.

The adjustable band or clamp of spring metal embracing the saw, when screwed up tightly, will securely hold the saw blade in place, which will insure the cutting of true, round holes. The blade does not set in place loosely, but is held absolutely rigid and securely. Operation is simple.

List Prices

Ideal Shell Drills

	Each
1 -inch O.D.	$1.75
1¼-inch O.D.	1.80
1 5/16-inch O.D.	1.80
1½-inch O.D.	1.50
2 -inch O.D.	2.00

Note—1 5/16-inch O. D. Drill used for ½, ¾ and 1-inch Spuds. 2-inch O.D. Drill for 1¼ and 1½-inch spuds.

Ideal Tap Drills

	Each
For ½-inch I.P.S. Tap	$1.65
For ¾-inch I.P.S. Tap	1.70
For 1 -inch I.P.S. Tap	1.75
For 1¼-inch I.P.S. Tap	1.85
For 1½-inch I.P.S. Tap	1.85
For 2 inch I.P.S. Tap	2.45

Ideal Saw Blades

	Dozen
1 -inch Shell Drill Blades	$2.10
1¼-inch Shell Drill Blades	2.25
1 5/16-inch Shell Drill Blades	2.25
1½-inch Shell Drill Blades	2.82
2 -inch Shell Drill Blades	3.15
½-inch Tap Drill Blades	2.00
¾-inch Tap Drill Blades	2.10
1 -inch Tap Drill Blades	2.25
1¼-inch Tap Drill Blades	2.82
1½-inch Tap Drill Blades	3.15
2 -inch Tap Drill Blades	4.65

Special Ideal Tap Drill Sets

	Set
3 Drills, 1-, 1¼-, 1½-inch	$5.00
6 Drills, ½-inch to 2-inch	10.00

WM. B. SCAIFE & SONS CO. OAKMONT, PA.

130 YEARS OLD

FOUNDED 1802

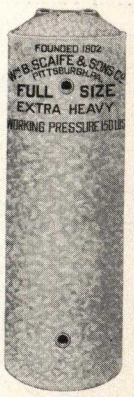
PITTSBURGH, PA.
Oliver Building

Branch Offices
NEW YORK, N. Y.
101 Park Avenue

CHICAGO, ILL.
38 South Dearborn Street

Scaife Range Boilers

Furnished in welded or rivet-weld construction. Standard, Extra Heavy and Double Extra Heavy carried in stock in all capacities.



Welded



Rivet-Weld

Vertical Boilers



Plate B-9

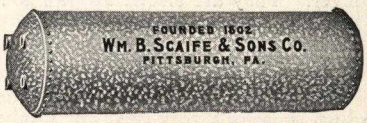


Plate B-11



Plate B-10



Plate B-12

Horizontal Boilers

Guarantees against defects in material or workmanship are good up to the time of installation and test. **Standard** grade boilers are guaranteed up to 85 pounds pressure. **Extra Heavy** and **Double Extra Heavy** grade boilers are guaranteed up to 150 pounds pressure. The latter, however, are guaranteed for a period of six years on a service basis.

Pneumatic Water Supply Tanks

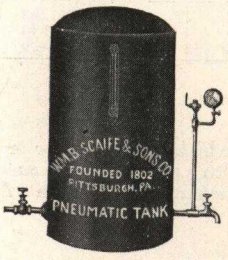


Plate C-6

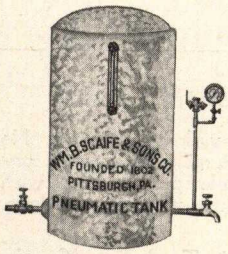


Plate C-7

These are made in welded construction, either black or galvanized, and can be supplied in most sizes up to 1000-gallon capacity. Send for bulletin.



Plate B-13

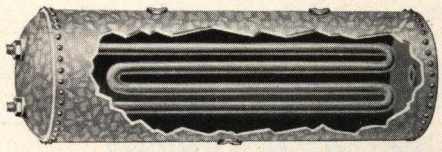


Plate B-14

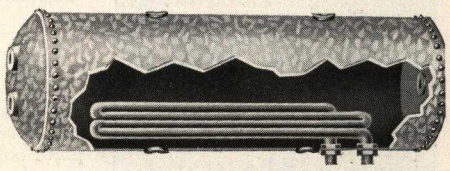


Plate B-15

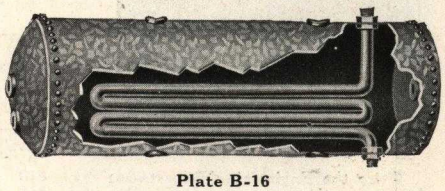


Plate B-16

Coil Boilers

We also manufacture Air Tanks, Water Filters and Water Softeners

KAUSTINE COMPANY, INC. PERRY, N. Y.

Branch Offices and Representatives:

Altoona, Pa., H. A. Wertz, 27 Altoona Trust Bldg.
Baltimore, Md., J. B. Shaeffer, 427 Gwynn Ave.
Birmingham, Ala., C. P. Liebold, 239 Brown-Marx Bldg.
Boston, Mass., J. A. McAuliffe, 214 Old South Bldg.
Bradford, Pa., L. L. Maltby, 13 Summer St.
Buffalo, N. Y., J. W. Fortenbaugh, 155 Hamlin Road.
Denver, Colo., National Light & Pump Co., 1632 Wazee St.
Detroit, Mich., A. D. Wright, 8745 Dumbarton Road.
Dundas, Ont., Can., Kaustine Mfg. Co., Ltd.
Libertyville, Ill., Charles F. Smale, 158 Newberry St.
Minneapolis, Minn., F. S. Wilsey, Plymouth Bldg.
New York, N. Y., Irwin Gutman, 55 W. 42nd St.
Pittsburgh, Pa., H. C. Leezer, 6039 St. Marie St.
Reading, Pa., D. A. Evans, 309 American Casualty Bldg.
San Francisco, Cal., W. H. Gilbert, Jr., 557 Market St.
Scranton, Pa., W. Bartley, 1113½ Ridge Row.
Trenton, N. J., R. E. Preine, Broad Street Bank Bldg.

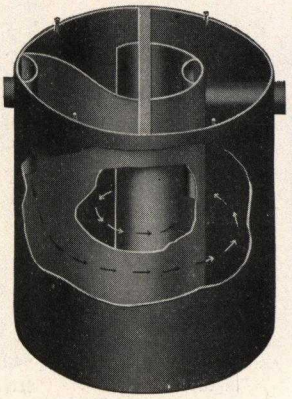
Kaustine Septic Tanks

Kaustine Septic Tanks are widely known and highly respected for the superior quality of materials and workmanship used in their construction. They are made entirely of Armco Ingot Iron which is, in itself, sufficient guarantee that they are better and will last longer. They are electrically welded—no rivets are used in their construction. Furthermore, they are coated inside and out with a heavy protective coat of asphaltum enamel applied by the hot-dipped process. Despite their established superiority they are priced to compete with many steel tanks of inferior quality.

Kaustine Septic Tanks are made in two types—the Kaustine Super-Septic Tank and the Kaustine Armco Ingot Iron Tank.

Kaustine Super-Septic Tanks

The high efficiency of the Kaustine Super-Septic Tank is the result of the patented interior features which produce a very clear and easily assimilated effluent. Made entirely of heavy gauge Armco Ingot Iron in sizes for every need, including homes, schools, clubs, institutions, etc. The perfect solution of the sewage disposal problem where a water supply is procurable but a system of public sewers is not available.



Super-Septic Tank

Super-Septic Tank Specifications

Catalog No.	Dimensions Inches Diam.-Depth	Total Capacity Gallons	Working Capacity Gallons	Gauge of Metal	Number of Persons Designed to Accommodate				Weight Pounds
					Home	Hotel	Factory	School	
112	38 x 50	245	200	12	7	8	15	20	295
113	48 x 50	390	320	12	10	12	25	30	470
114	55 x 60	615	535	12	17	30	40	45	800
115	65 x 60	860	735	10	25	45	55	60	1290
116	75 x 60	1150	1000	10	35	60	75	85	1650
117	92 x 60	1700	1500	10	50	90	115	130	1950

For larger capacities consult any of the above offices.

Kaustine Armco Ingot Iron Septic Tanks

Made in two types—vertical and horizontal. Constructed of Armco Ingot Iron and coated inside and outside with asphaltum enamel applied by the hot-dipped method.

Vertical Type

Made in three sizes: 200, 320 and 490-gallon capacities. Equipped with removable cover securely fastened with brass nuts for easy access to interior of tank.

Vertical Septic Tank Specifications

Catalog No.	Dimensions Inches Diam.—Depth	Net Capacity Gallons	Gauge of Metal	Number of Persons Designed to Accommodate				Weight Pounds
				Home	Hotel	Factory	School	
62	38 x 48	200	14	6	8	12	15	260
63	46 x 48	320	14	9	12	20	25	330
65	52 x 60	490	14	15	25	35	40	400



Write the Engineering Department for specifications, plans and engineering information covering sewage disposal problems to be solved by means of the septic tank. Its services are at your command. There is no charge.

Horizontal Type

Made in eleven sizes: 200-gallon up to 5000-gallon capacities. No. 82, which is the size for ordinary homes or small institutions, is provided with manhole opening covered with a plate that is securely bolted to tank. Nos. 85 to 820 have two manhole openings fitted with sleeves and covered with a flat plate bolted in place. Nos. 825 to 850 have three manhole openings.

Horizontal Septic Tank Specifications

Catalog No.	Dimensions Inches Diam.—Depth	Working Capacity Gallons	Gauge of Metal	Number of Persons Designed to Accommodate				Weight Pounds
				Home	Hotel	Factory	School	
82	38 x 48	200	14	6	8	12	15	260
85	52 x 60	500	14	.....	25	35	40	400
810	52 x 120	1000	12	.....	50	70	80	845
815	52 x 180	1500	12	.....	75	105	120	1150
820	68 x 144	2000	7	.....	100	140	165	2270
825	68 x 180	2500	7	.....	125	175	210	2675
830	68 x 216	3000	7	.....	150	200	250	3095
835	68 x 252	3500	7	.....	175	235	290	3525
840	68 x 288	4000	7	.....	200	270	330	3945
845	68 x 324	4500	7	.....	225	305	370	4365
850	68 x 360	5000	7	.....	250	340	410	4800

SAN-EQUIP INC. Fomerly Chemical Toilet Corporation SYRACUSE, N. Y.

Factory Representatives

Baltimore, Md., H. P. Supplee, 101 W. Monument St.
Boston, Mass., T. R. McElroy, 46 Everdean St.
Cleveland, Ohio, S. L. Carpenter, 14935 Delaware Ave.
Detroit, Mich., Geo. M. Scott, 2514 Pennsylvania Ave.
East Orange, N. J., M. F. Greene, 67 Washington St.
Ft. Worth, Texas, Allen, Sproull & Allen, Burkburnett Bldg.
Los Angeles, Cal., H. W. Brautigam, 923 E. Third St.
Memphis, Tenn., E. L. Goldstein, c/o Tennessee Hotel.
Miami, Fla., Jos. H. Nauss, 468 W. Flagler St.
Seattle, Wash., F. C. Neupert, 330 Central Bldg.
South Ardmore, Pa., W. R. Jouett, 225 Campbell Ave.
Springfield, Mass., W. L. Todd, 804 Belmont Ave.

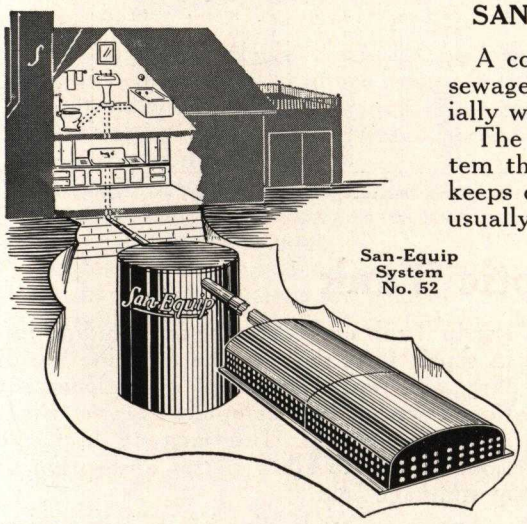
San-Equip "Certified" Sewage Disposal

If the sewage disposal system fails to operate properly, the rest of the plumbing is useless, regardless of cost. Then health and comfort are at stake.

Each unit of the disposal system—treatment tank and drainage field—is of equal importance. Only by providing a dependable septic tank with adequate drainage can you be sure of a safe trouble-free service.

San-Equip now offers a complete disposal system, combining correctly built treatment and drainage units—that furnishes more efficient disposal and greater protection. A "Certificate of Approved Equipment," backed by the largest manufacturers of home sewage disposal, is given with each system as a permanent record of the installation.

Two Types of Complete San-Equip Systems



San-Equip System No. 52

SAN-EQUIP SEPTIC TANK WITH SAN-EQUIP DRAIN POOL

A complete system that provides the most satisfactory and economical sewage disposal where there is no danger of water supply pollution. Specially well adapted for disposal in a limited area.

The San-Equip Drain Pool furnishes a more satisfactory drainage system than an ordinary leaching pool. It provides a larger seepage area—keeps drainage nearer the surface of the ground where soil conditions are usually best for final disposal.

This system is easily installed with a saving of labor and materials. Save by ordering the complete system as follows;

System No. 52—1 No. 402 San-Equip Septic Tank with 1 No. 250 Drain Pool—for homes of 4 to 6 persons where soil conditions are favorable.

System No. 53—1 No. 403 San-Equip Septic Tank with 1 No. 250 Drain Pool—for home of 6 to 9 persons under favorable soil conditions.

In tight soil increase drainage with additional Pool or by increasing stone fill around single Pool.

SAN-EQUIP SEPTIC TANK WITH SAN-EQUIP FILTER PIPE

This type of system is recommended where it is desirable to distribute treated sewage over a larger area. San-Equip Filter Pipe provides better drainage, lays easier, and functions longer than ordinary tile. Less pipe is required—labor for trenching is reduced—costly breakage is eliminated.

For Favorable Soil

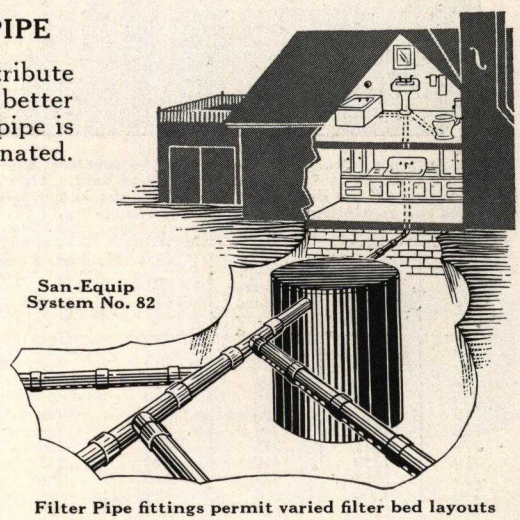
No. 82—1 No. 402 San-Equip Septic with 4 cartons No. 420 Filter Pipe (80 feet) and 1 carton No. 425 Fittings—4 to 6 persons.

No. 83—1 No. 403 San-Equip Septic with 5 cartons No. 420 Filter Pipe (100 feet) and 1 carton No. 425 Fittings—6 to 9 persons.

For Tight Soil

No. 84—1 No. 402 San-Equip Septic with 5 cartons No. 420 Filter Pipe (100 feet) and 1 carton No. 425 Fittings—4 to 6 persons.

No. 85—1 No. 403 San-Equip Septic with 6 cartons No. 420 Filter Pipe (120 feet) and 1 carton No. 425 Fittings—6 to 9 persons.



San-Equip System No. 82

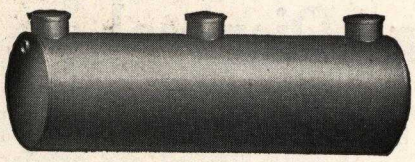
Filter Pipe fittings permit varied filter bed layouts

(See next page for complete specifications of San-Equip Septic Tanks and Drainage).

San-Equip Septic Tank

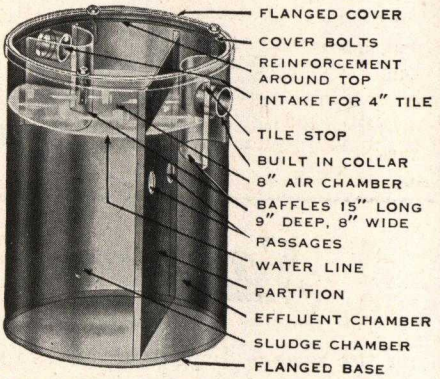
This is the original San-Equip proven by 10 years of service and recognized everywhere by health officials and engineers as standard equipment for unsewered districts.

DESIGN—Follows U. S. Public Health Service recommendations. Now improved by more liberal baffles—reinforced construction around top—set-in collars with stop lug—full partition, making two distinct chambers. Tanks of 500 gallons up are horizontal type. Nos. 405 to 925 have two manholes—larger tanks have three.



Horizontal Type Tank

MATERIAL—Special rust-resisting, copper-bearing iron, protected from moisture, acids and soil by a heavy enamel of mineral asphalt. Process paper covering over enamel for better shipping, storing and handling.



Patented April 9, 1929

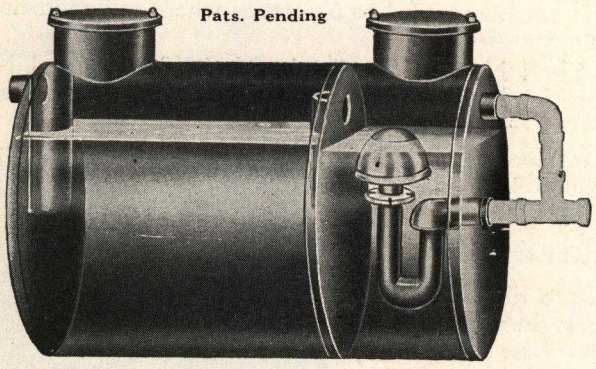
Tanks Nos. 402, 403 and 404 are vertical type as shown above.

No.	Total Capacity Gallons	Working Capacity Gallons	Number of People *Home	School	Factory	Dimensions	Gauge	Size of Openings Inches	Top of Tank to Bottom of Intake (Inches)	Top of Tank to Bottom of Outlet (Inches)	Shipping Weight Pounds
Vertical Tanks											
402	245	200	4 to 6	15	12	38" dia. x 48"	14	4	7	9	255
403	360	300	6 to 9	25	20	48" dia. x 48"	14	4	7	9	310
404	550	490	10 to 18	35	30	52" dia. x 60"	14	4	7	9	415
Horizontal Tanks											
405	550	500	10 to 20	40	35	52" dia. x 60"	14	4	8	10	425
410	1150	1000	20 to 40	80	70	52" dia. x 10'	12	6	10	13	925
915	1725	1500	40 to 75	120	105	52" dia. x 15'	12	6	10	13	1300
920	2300	2000	75 to 100	165	140	69" dia. x 11'8"	3/16"	6	10	13	2400
925	2875	2500	100 to 125	210	175	69" dia. x 14'7"	3/16"	6	10	13	2850
930	3450	3000	120 to 150	250	200	69" dia. x 17'6"	3/16"	8	12	15	3300
935	4025	3500	140 to 175	290	235	69" dia. x 20'5"	3/16"	8	12	15	3750
940	4600	4000	160 to 200	330	270	69" dia. x 23'4"	3/16"	8	12	15	4200
945	5175	4500	180 to 225	370	305	69" dia. x 26'3"	3/16"	8	12	15	4650
950	5750	5000	200 to 250	410	340	69" dia. x 29'2"	3/16"	8	12	15	5100

*Lower figures in home ratings column are recommended by health officials for most satisfactory service. In no instance, even for temporary use, should maximum ratings shown be exceeded.

San-Equip Siphon Septic Tank

Pats. Pending



The siphon discharges at 4 to 8 hour intervals in such volume as to send the effluent to every part of the filter field. This provides equal distribution of the drainage load—keeps the entire tile field active—reduces the possibility of overloading or clogging.

The San-Equip Tank embodies the outstanding improvement in septic tank design—the combination of siphon discharge and septic treatment in one compact unit. Digestion of sewage is as complete as ever. Final disposal is greatly improved. Intermittent discharge provides periods of rest to allow better absorption of effluent in the drainage field.

DESIGN—Approved by leading health authorities. All systems are horizontal type as shown. Nos. 725 up have three manholes. Liberal baffles—set-in collars with stop lug—full partition making two distinct chambers—electrically welded seams. All outlet openings are 4-inch diameter.

MATERIAL—Special, rust-resisting, copper-bearing iron, rust-proofed inside and out with pure mineral asphalt.

No.	Net Gallons	Siphon Discharge Gallons	Number of People Home	School	Factory	Dimensions	Gauge	Diameter of Intake	From Top of Tank to Bottom of Intake	From Top of Tank to Bottom of Outlet	Shipping Weight Pounds
703	240	60	7	15	12	48" x 48"	14	4"	5 1/2"	3' 1/2"	400
705	350	80	12	25	25	52" x 60"	14	4"	5 1/2"	3' 1/2"	495
707	550	120	25	50	40	52" x 90"	14	4"	5 1/2"	3' 1/2"	695
710	750	160	40	75	60	52" x 10'	12	6"	7 1/2"	3' 1/2"	1025
715	1125	225	70	110	95	52" x 15'	12	6"	7 1/2"	3' 1/2"	1375
720	1500	300	85	155	130	69" x 11'8"	3/16"	6"	10"	3' 5"	2475
725	1875	375	115	200	170	69" x 14'7"	3/16"	6"	10"	3' 5"	2975
730	2250	450	140	245	200	69" x 17'6"	3/16"	8"	12"	3' 7"	3425
735	2625	525	170	290	235	69" x 20'5"	3/16"	8"	12"	3' 7"	3875
740	3000	600	195	330	270	69" x 23'4"	3/16"	8"	12"	3' 7"	4325
745	3375	625	220	370	305	69" x 26'3"	3/16"	8"	12"	3' 7"	4775
750	3750	750	250	410	340	69" x 29'2"	3/16"	8"	12"	3' 7"	5225

Ask for blueprints of San-Equip Septic and Siphon Septic Tanks up to 10,000 gallons.

Empire Septic Tank

The Empire Septic is designed and constructed to provide sewage disposal facilities at the lowest cost consistent with safety. It furnishes a more dependable service than a cesspool or other home-made equipment but should not be considered as a substitute for the standard San-Equip System where long-time, permanent service is required.

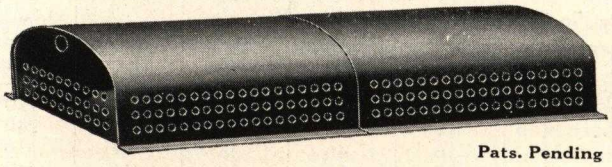
MATERIAL—14-gauge rust-resisting copper alloy iron—rust-proofed inside and out with asphalt enamel. Electrically welded seams assure a watertight tank. All tanks are upright design.



No.	Total Capacity Gallons	Working Capacity Gallons	Rating for Home (Persons)	Dimensions	Size of Openings Inches	Shipping Weight Pounds
200	240	200	4 to 6	38" dia. x 48"	4	220
300	360	300	6 to 9	48" dia. x 48"	4	280
500	550	490	10 to 18	52" dia. x 60"	4	360

San-Equip Drainage

San-Equip Drain Pool



Pats. Pending

A scientifically designed seepage pool that provides the most economical drainage where space is limited and where the disposal system will be located some distance from any source of water supply. Offers the following advantages:

A complete unit—easily installed.

Provides a greater drainage area than possible with an ordinary type pool.

Drainage takes place nearer surface of ground where soil conditions are better.

Durable—14 ga. asphalt coated copper-bearing iron.

Economical—saves labor and materials.

The Drain Pool is 96 inches long, 35 inches wide, 20 inches high. Provides 40 sq. ft. seepage area—adequate for 200 and 300 gal. septics in favorable soil. Built in two sections—shipped nested.

No. 250 DP—Weight 173 pounds.

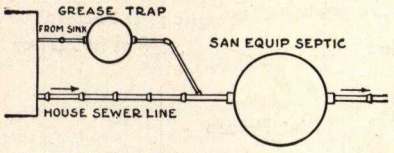
San-Equip Grease Trap

For use in hotels, restaurants, or wherever there is a large amount of grease and kitchen waste. Requires occasional skimming.

Made of copper-bearing iron, rust-proofed with mineral asphalt. Standard openings 2-inch threaded couplings. 4-inch openings if specified.

No. GT 40—40-gallon size, 22½ x 24 inches, weight 61 pounds.
No. GT 60—60-gallon size, 22½ x 36 inches, weight 79 pounds.





San-Equip Filter Pipe

An improved pipe for septic filter field drainage with many advantages over clay tile:

Specially perforated to increase drainage area from 12 to 20 times per foot.

Tight joints maintain alignment and prevent seepage of dirt into filter field.

Lays easier—less pipe is required with a proportionate saving in installation costs.

Eliminates breakage in shipping and handling.

San-Equip Filter Pipe is made of 16 ga. iron, coated inside and out with mineral asphalt. Fittings permit varied layouts of filter field.

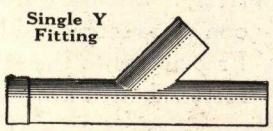
No. 420—Carton of 10 two-foot lengths of 4-inch pipe, weight 57 pounds.

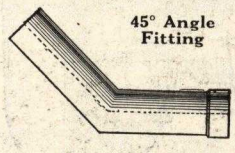
No. 425—Carton of 2 two-foot lengths unperforated pipe and 4 single Y fittings 4 x 24 inches, weight 39 pounds.

No. 445—45 degree angle fittings, 4 x 12 x 12 inches.



Pats. Pending





San-Solvent for Clogged Drains

San is a super-strength chemical with exceptional properties as a solvent and disinfectant. It provides a reliable and efficient treatment for cesspools, seepage pools and filter beds that are clogged from overloading or after long periods of use. Also clogged drain pipes and sewer lines.

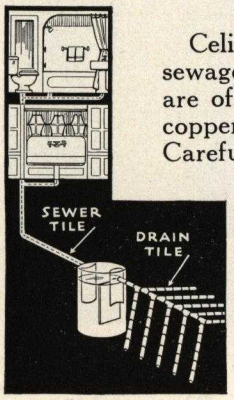
No. 525—25-lb. drum.
No. 505—One dozen 5-lb. cans, ½ dozen to carton.

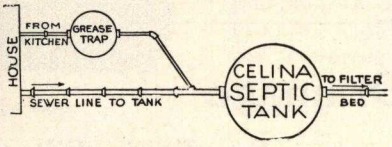


SAN-EQUIP WATERLESS TOILETS—Sanitary toilet facilities for homes, camps, schools, parks, etc. where running water is not available or where nearness of a source of water supply prohibits use of other disposal equipment. Write for catalog and prices.

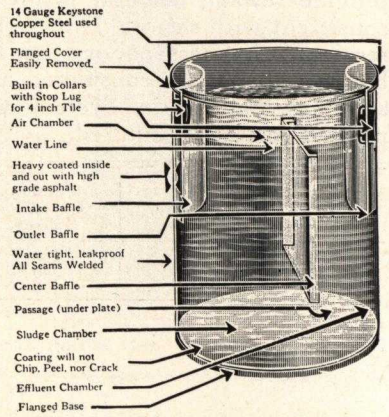
THE CELINA MANUFACTURING CO. CELINA, OHIO

Celina All-Steel Septic Tanks





Celina Septic Tanks provide a safe and economical means for sewage disposal in unsewered areas. Construction and design are of a most approved type. Made throughout of Keystone copper steel, and in a range of sizes for every ordinary need. Carefully and firmly welded seams insure a durable and water-tight tank. Arrangement of inlet, outlet, and center baffles provides proper septic action. A heavily applied pure asphalt coating seals both inside and outside of tank against action of corrosive forces. Complete installation instructions furnished with each tank.



Celina Grease Traps

For use in installation where there is a large amount of grease or kitchen waste.



No. T-1—40 gal. size 23x24 inches.

No. T-2—60 gal. size 23x36 inches.

Regular Stock Sizes of Celina Septic Tanks

No.	Capacity Gals.	Rating No. of People			Diameter Inches	Height Inches	Gauge Steel	Shipping Weight Pounds
		Home	School	Factory				
1	150	4	7	6	30½	48	14	170
2	220	7	14	11	38	48	14	240
3	330	10	21	16	46	48	14	310
4	500	20	35	30	52	60	14	440
5	690	30	50	45	60	60	12	580

All inlet and outlet connections on Celina septic tanks and grease traps are of a built-in type and made for 4-inch sewer tile. Prices and detailed information gladly furnished on request.

WILLIAM HUNT & SON ST. LOUIS, MO.

Main Office: 1127 South Grand Boulevard

Hunt's Combined Floor Drain and Cleanout

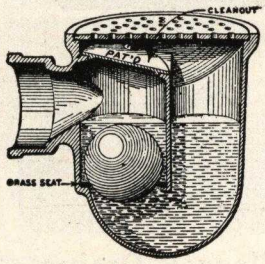


Fig. A
Backwater Trap

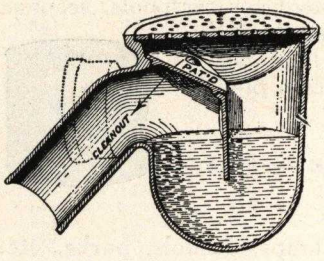


Fig. B
Plain Trap

The Back Water Trap, shown in Fig. A is cast in one piece. Brass ball rests on brass seat. This eliminates any sticking. Ball rises easily allowing water to flow freely. Should water evaporate, ball maintains the seal. Grate is held firmly by one brass screw and lug. The Plain Trap, shown in Fig. B, is also cast in one piece. Free access to the sewer is obtained by removing cleanout cover, which is securely fastened with 2 heavy brass screws.

Fig. B can be had in either hub outlet or ¾ S or spigot outlet.

Drains can also be furnished with Brass Top and Strainer, or Brass Strainer.

Fig. A—Backwater Trap

Width over Top.....11 inches
Size of Outlet.....4 inches
Weight.....52 pounds

Hub is made to take XH Pipe

Fig. B—Plain Trap

Width over Top.....11 inches
Size of Outlet.....4 inches
Weight P Pattern.....47 pounds
Weight ¾ S Pattern.....49 pounds

Will fit XH or Standard Pipe

List Prices

Fig. A—Backwater.....$19.00
Fig. B—Plain Trap.....14.00
With Pol. Brass Top and Strainer add, each.....13.00
With Pol. Brass Strainer add, each.....8.00

NORMAN BOOSEY MANUFACTURING COMPANY

Main Office and Plant—5140 Hamilton Avenue, Detroit, Mich.

BOOSEY

Grease Interceptor

The Boosey Grease Interceptor is a new achievement with basic improvements and with exclusive features never used before in grease trap construction.

The body is of cast iron and can be furnished either painted or galvanized. All parts are removable for cleaning, and the waste connections may be either hub or tapped.

Furnished with or without water cooler or removable grease retainer.

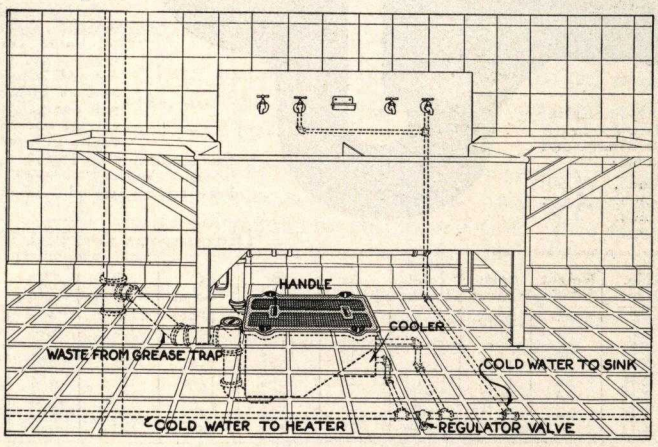
Operation

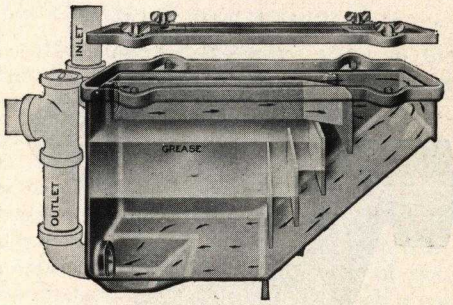
Fixture discharge enters the trap through the scupper section, and then to the flow reducing chamber and into the grease separator, passing under the grease retaining section to the trap outlet. By this method flow through trap is maintained without disturbing the retained grease in storage section.

Water cooler, attached to grease trap, adds to the efficiency of the trap. When the grease storage compartment is filled with grease to capacity the greater part of the additional grease accumulates in the pressure reducing chamber, located directly above water cooler, where the grease chills and becomes hard, closing the flow which necessitates the removal of grease from trap before fixture can be used. Water supply to cooler should be at a temperature of 68 degrees or lower.

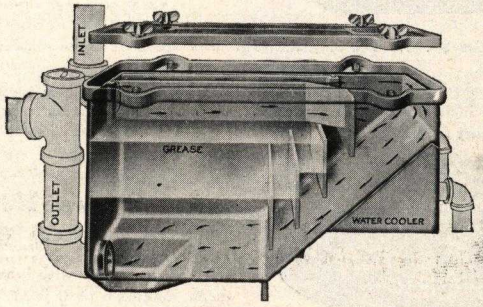
The addition of aluminum grease retainer practically reduces the care of the trap to the mere act of lifting out, emptying, and replacing of the retainer.

See sizes, list prices and capacities in table below.

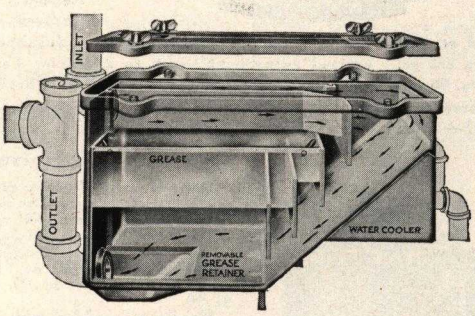




No. 1501-B Without Water Cooler



No. 1501-B With Water Cooler



No. 1501-B With Water Cooler and Removable Grease Retainer

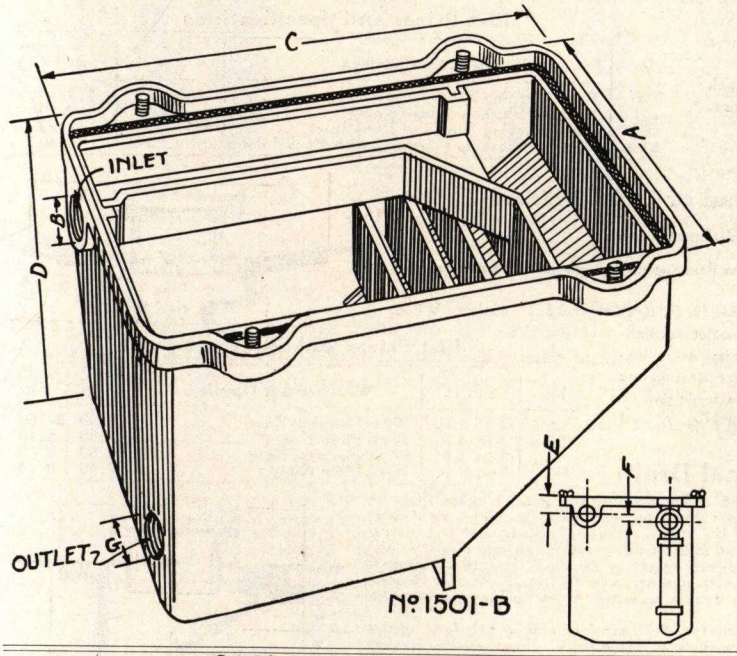


Plate No.	Waste Sizes Inches	Special Waste Sizes Inches	Flow Gallons Per Hour	Grease Capacity Pounds	List Tapped	List Hubs	Add to List for Water Cooler	Add to List for Aluminum Retainer	Dimensions—Inches							Waste Centers Inches
									A	B	C	D	E	F	G	
1501-B	1½	.....	500	22	$50.00	.....	$10.50	$15.00	12	1½	17	14	2⅛	½	1½	5⅜
1501-B	.....	2	500	22	50.00	$51.40	10.50	15.00	12	1½	17	14	2⅛	½	2	5⅜
1501-C	2	.....	850	50	80.00	81.40	15.00	19.00	14	2	20	14	2⅜	½	2	6⅜
1501-C	.....	3	850	50	85.00	88.20	15.00	19.00	14	2	20	14	2¾	½	3	5¾

CRAMPTON-FARLEY BRASS CO. KANSAS CITY, MO.

Established 1891 221 Main Street

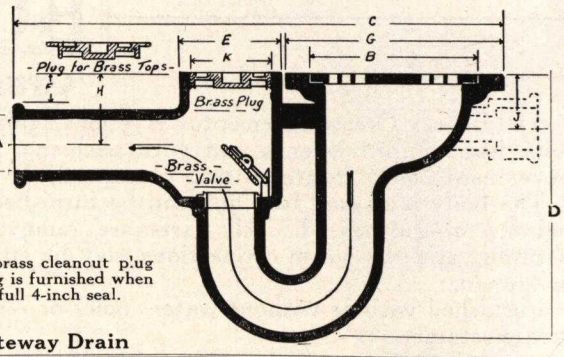
Manufacturers of Floor, Shower and Area Way Drains



For Extra Heavy Iron Strainers add to list:
2-inch, $1.00;
3-inch, 2.00;
4-inch, 2.50.

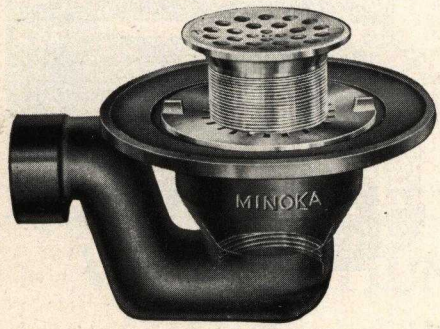
Gateway Floor Drain

Body is made of heavy cast iron, asphaltum coated. Valve is made of cast brass and being submerged, insures a clean seat as grease and lint will rise to surface and is carried off. When water backs up from the sewer, the pressure is on top of valve. Large brass cleanout plug is easily removed. Flanged cleanout plug is furnished when brass top is supplied. All numbers have full 4-inch seal.



Dimensions and List Prices—Gateway Drain

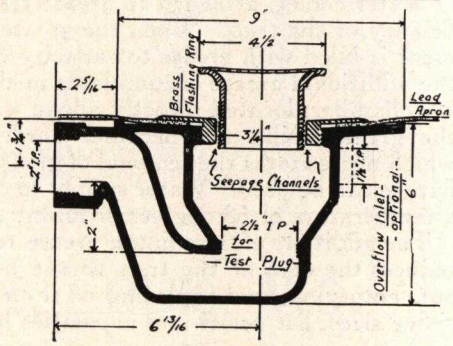
No.	Weight Pounds	Style Outlet	Back Inlet Inches	A Inches	B Inches	C Inches	D Inches	E Inches	F Inches	G Inches	H Inches	J Inches	K Inches	Iron Top	Polished Brass Top	N. P. Brass Top	C. P. Brass Top
2	22	S. P.	.....	2	6 5/8	17 1/2	10 3/16	4 1/2	1 1/2	7 7/8	2 7/8	.....	3 1/4	$ 7.50	$10.00	$10.60	$11.25
3	55	S. P.	.....	3	9 3/8	24 5/8	13	5 1/2	2 1/16	10 5/8	3 15/16	.....	3 1/4	14.20	21.00	21.70	22.75
4	65	S. P.	.....	4	11 1/2	28	14 1/2	6 3/8	2	13	4 5/16	.....	4	19.30	26.00	27.10	29.00
D-2	22	I. P.	.....	2	6 5/8	15 5/8	10 3/16	4 1/2	1 3/8	7 7/8	2 7/8	.....	3 1/4	8.00	10.50	11.10	11.75
2-R	24	S. P.	1 1/2 I.P.	2	6 5/8	17 1/2	10 3/16	4 1/2	1 1/2	7 7/8	2 7/8	1 15/16	3 1/4	8.50	11.00	11.60	12.25
2-H	24	S. P.	2 S.P.	2	6 5/8	17 1/2	10 3/4	4 1/2	1 1/2	7 7/8	2 7/8	2 1/2	3 1/4	8.50	11.00	11.60	12.25
3-H	60	S. P.	2 S.P.	3	9 3/8	24 5/8	13	5 1/2	2 1/16	10 5/8	3 15/16	2 7/8	3 1/4	15.20	22.00	22.70	23.75
4-H	70	S. P.	2 S.P.	4	11 1/2	28	14 1/2	6 3/8	2	13	4 5/16	2 7/8	4	20.30	27.00	28.10	30.00



Minoka Shower or Urinal Drain

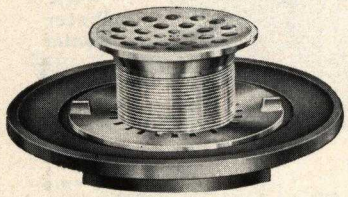
Body is made of heavy cast iron. Strainer, collar, flashing and plain seepage rings are made of cast brass. The flashing ring screws down on lead apron, making a tight joint. Seepage openings are next to the threads of the collar. Vertical adjustment is 1¼-inch to 2¾-inch. Although shallow, this drain has a full 2-inch water seal and is tapped for testing. When desired, it is furnished with 1½-inch I. P. back inlet for an overflow connection. Weight 17 pounds. 2-inch spigot or 2-inch S. P. hub attachments furnished at no extra cost. For 5-inch diameter strainer, add to list $0.50. For Beehive strainer, add to list $1.00. For adjustable double eccentric brass bushings, add to list $1.50.

Regularly furnished with flat 4½-inch diameter N. P. strainer and 2-inch I. P. outlet. 1½- inch I. P. outlet furnished, when so ordered at same price. Featheredge strainer furnished, when so ordered at no extra charge.



List Prices and Specifications

No.	With Seepage Openings	N. P. Top	Chromium Plated Top
90	With Flashing Ring	$10.30	$10.90
91	Without Flashing Ring (plain)	8.80	9.40
90–8	With Flashing Ring and Back Inlet	11.30	11.90
91–8	Without Flashing Ring and with Back Inlet	9.80	10.40

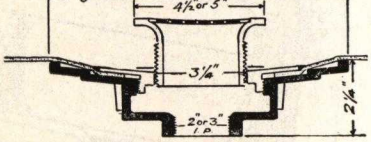


Shower Head or Urinal Drain

Without Trap

Heavy iron body with brass flashing ring which screws down on lead apron, making a tight joint.

Regularly furnished with flat N. P. strainer and I. P. outlet. When so ordered, 1½-inch I. P. outlet furnished at same price as 2-inch. Featheredge strainer furnished, when so ordered at no extra charge. Vertical adjustment 1-inch to 2⅛-inch. For 5-inch diameter strainer for No. 96, add to list $0.50. For Beehive strainer, add to list $1.00. For adjustable double eccentric brass bushings, add to list $1.50. Diameter of brass strainer for Nos. 97 and 97-A (3-inch outlet) 5 inches.



List Prices and Specifications

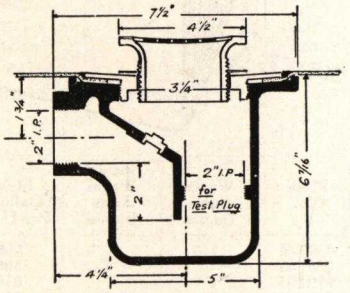
No.	Outlet	With Seepage Opening	N. P. Top	C. P. Top
96	2 in. I.P.	With Flashing Ring	$7.00	$7.60
96-A	2 in. I.P.	With Plain Ring	5.50	6.10
97	3 in. I.P.	With Flashing Ring	9.00	9.60
97-A	3 in. I.P.	With Plain Ring	7.50	8.10



Noxall Shower or Urinal Drain

Body is made of heavy cast iron. Strainer, collar, flashing and plain seepage rings are made of cast brass. The flashing ring screws down on lead apron, making a tight joint. Seepage openings are next to the threads of the collar. Vertical adjustment is 1-inch to 2⅛-inch. Drain has full 2-inch water seal and is tapped for testing. Brass cleanout plug is an added feature. Weight 14 pounds. 2-inch spigot or 2-inch S. P. hub attachment furnished at no extra cost. For 5-inch diameter strainer, add to list $0.50. For Beehive strainer, add to list $1.00. For adjustable double eccentric brass bushings, add to list $1.50.

Regularly furnished with flat 4½-inch diameter N. P. strainer and 2-inch I. P. outlet. When so ordered, 1½-inch I. P. outlet furnished at same price. Featheredge strainer furnished at no extra charge, when so ordered.



List Prices and Specifications

No.	With Seepage Opening	N. P. Top	Chromium Plated Top
39	With Flashing Ring	$8.00	$8.60
39-A	Without Flashing Ring (plain)	6.50	7.10

WRITE FOR OUR COMPLETE CATALOG

COMPOUND INJECTOR & SPECIALTY CO. CHICAGO, ILL.

Long Distance Telephone Austin 1861, 1862, 4470

General Offices and Plant: 419-421 North Laramie Avenue

GEORGE J. DEHN, S.E., President

Originators, Designers and Sole Manufacturers

THE PIONEERS (ESTABLISHED 1897)

Cable Address "Compound Chicago"

Dehn's Sanitary Safeguards

Architects, sanitary engineers and contractors will safeguard the health and property of their clients by specifying this company's sanitary devices. As the trade-names "ACME," "CENTRIFUGAL" and "PEERLESS" imply, they are unexcelled in design and operation. They are durable in make and in every way reliable; it is taking chances to permit substitution under the "or equal" clause where this company's product is specified. The essential parts of these devices are patented. More than 35 years' experience originating and designing modern sanitary appliances is your assurance of satisfaction.

1897 ☆ 1932
DEHN'S STANDARD SANITARY PRODUCTS
THE PIONEERS

Their installation protects health, life and property, and are most practical, economical and satisfactory to install.

How to specify—Architects and engineers shall refer to figure number, size, size openings and the letter designation for the finish desired, when specifying the articles of our manufacture.

Catalogue—Write for Dehn's Sanitary Safeguards New No. 33 Catalogue, illustrating and describing many of our improved modern plumbing and drainage appliances.

Dehn's "Centrifugal" Double Trapped Water Cooled Grease Catchbasin

A New Departure in Water Cooled Grease Separators and Catchbasin Construction

Architects and Engineers (Sanitary and Construction) in cities and in localities where sewage disposal and septic tank systems are in operation, will welcome this great improvement —*elimination of grease in the sewage systems*. Industrial plants, hotels, large institutions, city, county and state, will find these safeguards indispensable in the *elimination of grease in waste pipes and sewage systems*.

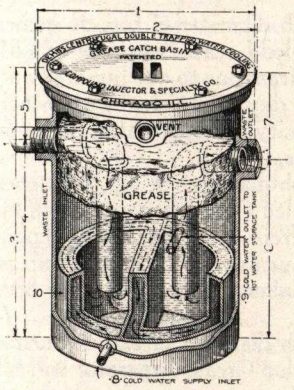


Fig. No. 150 and Larger Sizes
(Patented and patents pending)
Dehn's "CENTRIFUGAL" Double Trapped Water Cooled Grease Separator and Catchbasin.
Tested 250 lbs. cold water pressure.

Our new and improved "CENTRIFUGAL" Double Trapped Water Cooled Grease Separator and Catchbasin will positively congeal and retain the grease in the basin. The water cooler, tested to 250 lbs. cold water pressure, permits the main cold supply inlet to connect direct with the water cooler and the outlet with all the faucets and fixtures including the hot water storage tank, on the premises. The cold water supply must circulate through the entire compartments of the water cooling chamber, allowing a continuous circulation of cold water, and permitting the water in the catchbasin to remain at the same temperature as that of the water in the cold water supply pipe.

The cold water supply pipe connecting with the water cooler is constructed with a separate compartment; this will not allow the cold water supply to come in contact with the waste water in the grease separator and catchbasin. This feature is most important and can only be accomplished in this construction. It has been experienced when large volumes of hot, greasy, oily water are discharged into a receptacle which is not provided with water cooling features, the grease will remain in a fluid condition and discharge into the waste pipes and sewage systems, where it will congeal and clog the pipes and sewage systems. Water cooled grease separators and catchbasins make a most practical, economical and satisfactory installation.

Round grease separators and catchbasins are artistic in design and most practical to install. An allowance of 50% additional capacity for increased requirements should be specified when original installation is made.

One type or size will not fill every requirement; every installation is a problem in itself.

Consult us for full information with your problems. Advice free.

We manufacture a complete line of grease separators and catchbasins to meet every condition. Consult our complete catalogue for full information.

Dehn's "CENTRIFUGAL" Grease Catchbasin Specifications

Fig. No.	Meals Supplied per Day or Less	1 Diam. of Top, In.	2 Measurement Over All Including Openings, In.	3 Depth Over All, In.	4 Waste Inlet: Floor to Center of Inlet Opening, In.	5 Waste Inlet: Top to Center of Inlet Opening, In.	6 Waste Outlet: Floor to Center of Outlet Opening, In.	7 Waste Outlet: Top to Center of Outlet Opening, In.	8 Cold Water Supply: Inlet to Water Cooler, In.	9 Cold Water Supply: Outlet from Cooler, In.	10 "Centrifugal" Water Cooler,	11 Waste Opening: Inlet, In.	12 Waste Opening: Outlet, In.	13 Depth Baffle Plate, In.	14 Local Vent Opening, In.	Gal. Water per Hr.	Capacity Grease Lb.	Wt. Approx. Lb.	Price, Each
150-A 20-1	150	20	22	20	15	5	14	6	1	1		2	2	10	2	222	35	450	$ 95.00
151-A 30-1	300	20	22	30	24	6	23	7	1	1		3	3	10	2	720	80	550	125.00
152-A 36-1	1450	32	36	36	29	7	28	8	1½	1½	100%	4	4	16	4	880	325	1750	350.00
153-A 42-1	2000	32	36	42	35	7	34	8	1½	1½	Cooling	4	4	16	4	880	450	1900	400.00
154-A 48-1	2700	38	42	48	41	7	40	8	2	2	Service	6	6	16	4	2880	860	2600	750.00
155-A 54-1	3350	38	42	54	47	7	46	8	2	2		6	6	16	4	2880	1000	2800	850.00
156-A 60-1	4000	38	42	60	53	7	52	8	2	2		6	6	16	4	2880	1150	3000	1000.00

Note—This schedule applies to capacities of grease separators and catchbasins when the main cold water supply pipe is connected direct with the water cooler inlet and outlet with all the faucets, fixtures and hot water storage tank on the premises. The accumulated grease should be removed at least once each week.

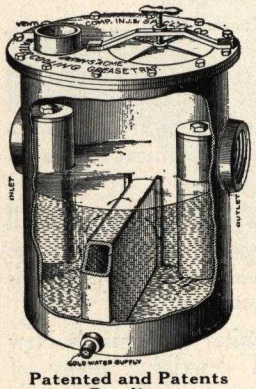
Copyright 1932, by the Compound Injector & Specialty Co.

Dehn's "ACME" Double-Trapped Water Cooled Grease Separators

(Registered Trade Mark)

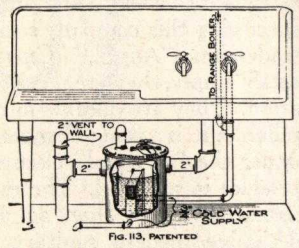
Only Water Cooled Grease Separators will chill the water, congeal and retain the grease in the Catch Basin. You, as an experienced Engineer, can judge and decide problems of temperature to solidify fat.

1897 ☆ 1932
DEHN'S STANDARD SANITARY PRODUCTS
THE PIONEERS



Patented and Patents Pending
Fig. No. 113—Dehn's AcmE Double Trapped Water Cooled Grease Separator

When Dehn's "ACME" Double Trapped Water Cooled Grease Separators are installed and properly connected—i.e., the main cold water supply pipe connected with the inlet of the water cooler in the Grease Separator and the outlet of the water cooler with the cold water supply to range boiler or storage tank and also with all the cold water faucets on the premises, including the cold water supply pipes to the Closet Tanks, the installation will permit the continuous circulation of cold water through the water cooler in the Grease Separator; hence, the Grease entering in the Grease Separator will be congealed and retained where it can easily be removed by anyone. Not a particle of grease can find its way out of the basin through the outlet into the sewer when Dehn's "ACME" Double Trapped Water Cooled Grease Separators are installed and connected according to these directions.



Patented and Patents Pending
Fig. No. 113—Water Cooled Correct Installation

Schedule of capacity of Dehn's "ACME" Double-Trapped Water Cooled Grease Separators, when installed in residences, restaurants, hotels, boarding houses, eating houses, large and public institutions

This Schedule applies to capacities of Grease Separators when the Grease is removed at least once each week

This Schedule applies to Fig. No. 113, Double-Trapped Water Cooled Grease Separator

Fig. No. 113—No. 15-1. 12-inch diameter of top, 15 inches deep, Double Trapped Water Cooled Grease Separator will fill the requirements when supplying from one to twenty-five people with three meals each day. Furnished with 2-inch hub or 2-inch Iron Pipe, threaded in and outlet openings. Capacity Gallons Water, per hour 220. Capacity Grease, 18 pounds.

Fig. No. 113—No. 18-1. 12-inch diameter of top, 18 inches deep, Double Trapped Water Cooled Grease Separator will fill the requirements when supplying from one to thirty-five people with three meals each day. Furnished with 2-inch hub or 2-inch Iron Pipe, threaded in and outlet openings. Capacity Gallons Water, per hour 220. Capacity Grease, 27 pounds.

Fig. No. 113—No. 24-1. 20-inch diameter of top, 24 inches deep, Double Trapped Water Cooled Grease Separator will fill the requirements when supplying from one to seventy-five people with three meals each day. Furnished with 4-inch hub in and outlet openings. Capacity Gallons Water, per hour 880. Capacity Grease, 50 pounds.

Fig. No. 113—No. 30-1. 20-inch diameter of top, 30 inches deep, Double Trapped Water Cooled Grease Separator will fill the requirements when supplying from one to one hundred people with three meals each day. Furnished with 4-inch hub in and outlet openings. Capacity Gallons Water, per hour 880. Capacity Grease, 90 pounds.

Fig. No. 113—No. 36-1. 20-inch diameter of top, 36 inches deep, Double Trapped Water Cooled Grease Separator will fill the requirements when supplying from one to one hundred and fifty people with three meals each day. Furnished with 4-inch hub in and outlet openings. Capacity Gallons Water, per hour 880. Capacity Grease, 135 pounds.

Fig. No. 113—No. 24-2. 24-inch diameter of top, 24 inches deep, Double Trapped Water Cooled Grease Separator will fill the requirements when supplying from one to one hundred people with three meals each day. Furnished with 4-inch hub in and outlet openings. Capacity Gallons Water, per hour 880. Capacity Grease, 63 pounds.

Fig. No. 113—No. 30-2. 24-inch diameter of top, 30 inches deep, Double Trapped Water Cooled Grease Separator will fill the requirements when supplying from one to one hundred and fifty people with three meals each day. Furnished with 4-inch hubs in and outlet openings. Capacity Gallons Water, per hour 880. Capacity Grease, 108 pounds.

Fig. No. 113—No. 36-2. 24-inch diameter of top, 36 inches deep, Double Trapped Water Cooled Grease Separator will fill the requirements when supplying from one to two hundred people with three meals each day. Furnished with 4-inch hub in and outlet openings. Capacity Gallons Water, per hour 880. Capacity Grease, 172 pounds.

Fig. No. 113 ..... Number	15–1	18–1	24–1	30–1	36–1	24–2	30–2	36–2
Diameter of Top ..... inches	12	12	20	20	20	24	24	24
Depth Over All ..... inches	15	18	24	30	36	24	30	36
Waste In and Outlet ..... inches	2	2	4	4	4	4	4	4
Vent Hub ..... inches	1½ I.P.	1½ I.P.	2	2	2	2	2	2
Gallons Water ..... per hour	220	220	880	880	880	880	880	880
Grease Capacity ..... pounds	18	27	50	90	135	63	108	172
Price, Fig. No.113-A—Painted ..... each	$35.00	$40.00	$65.00	$75.00	$90.00	$80.00	$95.00	$110.00

Furnished enameled inside. Enameled inside and outside. Price upon application.

Fig. No. 113—No. 15-1 and No. 18-1 Grease Separators only are furnished with two-inch Hub or Iron Pipe threaded connections. All larger sizes are furnished with four-inch Hub Connections.

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Dehn's Grease Separators and Catch Basins

Fig. No. 111—Dehn's Hygienic Grease Separator and Trap

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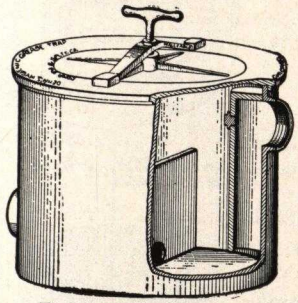


Fig. No. 111—Patented

This Trap is designed to absolutely prevent the escape of sewer gas and is not liable to siphon. It is readily accessible for cleaning. The reseal opening in the partition positively seals the outlet to the sewer under all conditions. Sewer gas cannot escape when cover is removed.

Size of Openings (Iron Pipe Threaded)	Inches	1½
Length	Inches	13
Width	Inches	9
Depth	Inches	9
Grease Space	Inches	6x11
Price, A, Painted Inside and Outside	Each	$10.00
Price, B, Enameled Inside and Painted Outside	Each	15.00
Price, C, Enameled Outside and Painted Inside	Each	15.00
Price, D, Enameled Inside and Outside	Each	20.00

Can be furnished with 1½-inch brass solder unions with straight or bent Tail Pieces. Extra per set, $3.00.

Fig. No. 111½—Dehn's Hygienic Hair Separator and Trap

A new departure for Beauty and Tonsorial parlors and other establishments where difficulty is experienced with hair, lint, matches, and other particles accumulating in the waste pipes. Our Hygienic Hair Trap will catch every particle of refuse in the receptacle that will not dissolve in the water.

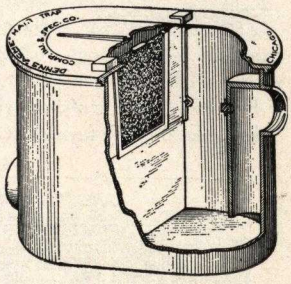


Fig. No. 111½—Patented

Size of Openings (Iron Pipe Threaded)	Inches	1½
Length	Inches	13
Width	Inches	9
Depth	Inches	9
Price, A, Painted Inside and Outside	Each	$15.00
Price, B, Enameled Inside and Painted Outside	Each	20.00
Price, C, Enameled Outside and Painted Inside	Each	20.00
Price, D, Enameled Inside and Outside	Each	25.00

Can be furnished with 1½-inch brass solder unions with straight or bent Tail Pieces. Extra per set, $3.00.

Dehn's "ACME" Double-Trapped Grease Separator and Catch Basin Furnished Without Water Cooler

Fig. No. 112, Double Trapped Grease Trap is recommended to be installed in residences, restaurants, hotels, etc., that are occupied during the summer months, and in buildings where small quantities of hot greasy water is discharged into the receptacle.

Fig. No. 112 Number	15–1	18–1	24–1	30–1	36–1	24–2	30–2	36–2
Diameter of Top Inches	12	12	20	20	20	24	24	24
Depth Over All Inches	15	18	24	30	36	24	30	36
Waste In and Outlet Inches	2	2	4	4	4	4	4	4
Vent Hub Inches	1½ I.P.	1½ I.P.	2	2	2	2	2	2
Gallons water per hour	220	220	880	880	880	880	880	880
Grease Capacity pounds	16	25	46	85	130	60	103	166
Price, Fig. No. 112-A, Painted	$20.00	$25.00	$45.00	$55.00	$70.00	$60.00	$75.00	$90.00

Furnished enameled inside. Enameled inside and outside. Price upon application.

Fig. No. 112, No. 15–1 and 18–1 Grease Traps only are furnished with two-inch Hub or Iron Pipe threaded connections. All larger sizes are furnished with four-inch Hub connections.

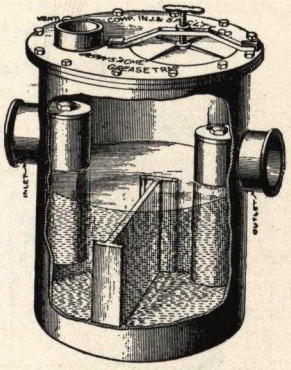


Fig. No. 112—Patented and Patents Pending Double-Trapped

Dehn's "ACME" Water Cooled Grease Separator and Catch Basin Furnished with Iron Pipe Threaded Connections Only

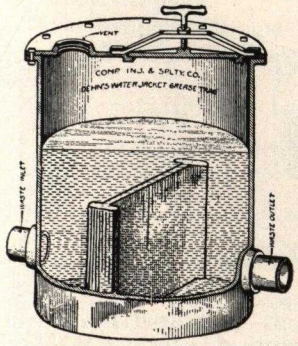


Fig. No. 114½—Patented Furnished Without Water Cooler

Fig. No. 114 No.	15–1	18–1	24–1	30–1	36–1	24–2	30–2	36–2
Diam. of Top Ins.	12	12	20	20	20	24	24	24
Depth Over All Ins.	15	18	24	30	36	24	30	36
Waste In and Outlet, Inches	2	2	4	4	4	4	4	4
Vent Hub Ins.	1½IP	1½IP	2	2	2	2	2	2
Gallons water per hr.	220	220	880	880	880	880	800	880
Grease capacity lbs.	18	27	50	90	135	63	108	172
Price, Fig. No. 114-A Painted, Water Cooled Each	$35	$40	$65	$75	$90	$80	$95	$110

Furnished enameled inside. Enameled inside and outside. Price upon application. **Prices do not include any fittings.** These Grease Catch Basins can also be furnished without water cooler.

Furnished Without Water Cooler

Price, Fig. No. 114½-A, Painted Each	$20	$25	$45	$55	$70	$60	$75	$90

Furnished enameled inside. Enameled inside and outside. Price upon application. **Prices do not include any fittings.**

Refer to Fig. No. 112 for water and grease capacities.

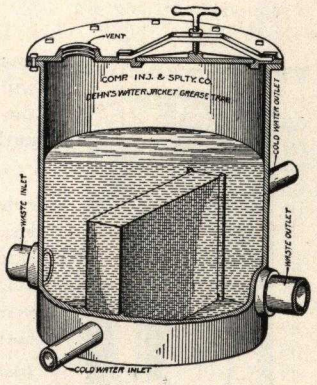


Fig. No. 114—Patented and Patents Pending Furnished with Water Cooler

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DEHN'S STANDARD SANITARY PRODUCTS
THE PIONEERS

The Original Dehn's "PEERLESS"
(Registered Trade Mark)
Garage Floor Drains with Refuse Separator and Catch Basin

For the installation in buildings where the water carries mud, sand, and other refuse. The "PEERLESS" Floor Drains are the most convenient, practical, satisfactory and economical. The Bar Grate is extra heavy, for heavy duty. Furnished with four-inch outlet only.

Fig. No. 0-60, furnished with Automatic Back Water Valve, with hand hole, flush with floor.

Fig. No. 0-6050, furnished less Back Water Valve, with 2-inch iron pipe threaded brass countersunk head cleanout plug, flush with floor.

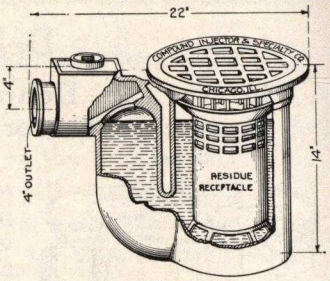


Fig. No. 0-6050—Without Back Water Valve

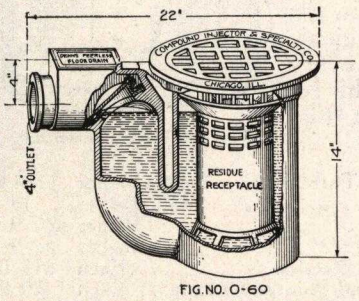


Fig. No. 0-60—With Automatic Back Water Valve

Fig. No. 0-6075, furnished with Water-tight Expansion Joint Shelf (the original) provided with asbestos rubber gasket, permitting the connections with Floor Drain to expand and contract according to conditions, making a water-tight joint. No weepholes to permit the sewerage to back up to contaminate the surface around the drains.

		Fig. No. 0-60	Fig. No. 0-6050	Fig. No. 0-6075
Size of Outlet	inches	4	4	4
Diameter of Top	inches	12	12	12
Depth Over All	inches	14	14	14
Length Over All	inches	22	22	13
Approximate Weight	pounds	125	125	100
Price, A, with Iron Top and Strainer	each	$35.00	$25.00	$25.00
Price, B, Brass Top and Strainer	each	50.00	40.00	40.00

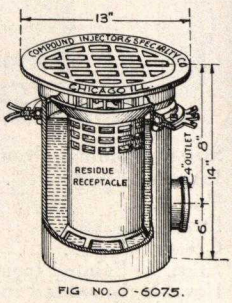


Fig. No. 0-6075 With Watertight Expansion Joint Shelf

Petromortis in Garage
A Great Many Motorists Killed by Gas from Their Own Automobiles
Install Dehn's "PEERLESS" Garage Drains to Avoid Similar Experience—Protect Health, Life and Property

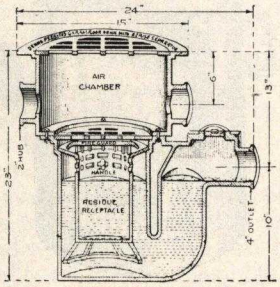


Fig. No. 0-61 With Vented Hood

Fig. No. 0-61 and Fig. No. 0-6150 "PEERLESS" Garage Floor Drains
(Reg. Trade Mark)
With Refuse Separator and Catch Basin

Especially designed for use in small public or private garages. The receiving hood is provided with vent hub openings on either side from which vent pipes can be extended to the outside of the building to allow fumes or gases from the waste gasoline to escape.

		Fig. No. 0-61	Fig. No. 0-6150
Size of Outlet	inches	4	4
Size of the two Vent Hub Connections	inches	2	2
Diameter of Top	inches	15	15
Depth Over All	inches	23	23
Length Over All	inches	24	15
Approximate Weight	pounds	185	160
Price, A, with Iron Top and Strainer	each	$40.00	$40.00

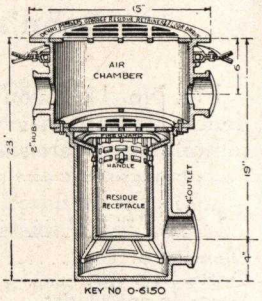


Fig. No. 0-6150 With Vented Hood with Water-Tight Expansion Joint Shelf with Outlet Opening for Connection Below Ceiling

The Original
Fig. No. 0-62—Dehn's "PEERLESS" Garage Floor Drain
(Registered Trade Mark)
With Refuse Separator and Catch Basin

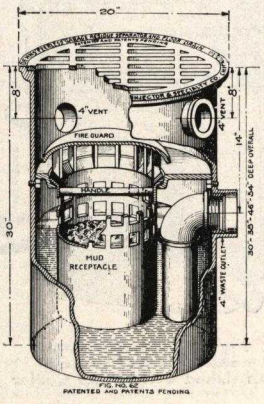


Fig. No. 0-62—Patented

This drain should be installed in every automobile garage. The mud, sand and other refuse washed from automobiles, vehicles, etc., will accumulate in the receptacle. This drain is constructed so that the force of the water cannot drive it out of the basin through the outlet into the sewer.

"PEERLESS" Garage Drainage Systems permit a continuous circulation of air through the air chamber in the Garage Drains regardless of the doors or windows being closed; the fresh air inlet at the side of the building permits the air to enter the Drains, which circulates through the air chamber of the drain and out through the vent stack through the roof; hence no danger of gas or fumes in the Garage.

Diameter of Top	inches	20	20	20	20
Size of Waste Outlet	inches	4	4	4	4
Depth Over All	inches	30	38	46	54
Two Vent Hub Connections	inches	4	4	4	4
Approximate Weight	pounds	400	500	600	700
Price, A, with Iron Top and Strainer	each	$75.00	$95.00	$110.00	$125.00

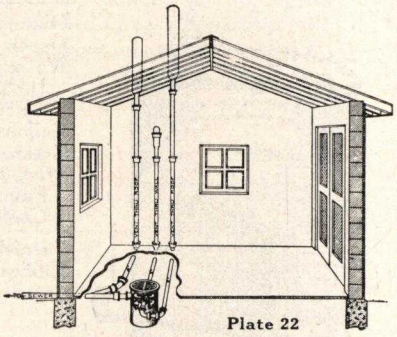

Plate 22

Fig. No. 62—(Patented) Illustrating Installation of Dehn's' 'PEERLESS" Garage Drainage System

This installation is required to be installed in all cities where rigid plumbing and drainage ordinances and inspection exist.

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The Original Dehn's "PEERLESS" (Reg. Trade Mark) Garage Floor Drains With Refuse Separators and Catch Basins

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For installation in public and large garages and large establishments where the Floor Drains must be provided with retainers to prevent refuse from discharging into the sewers.

You cannot accept substitutes as being equally as good; they have no equal.

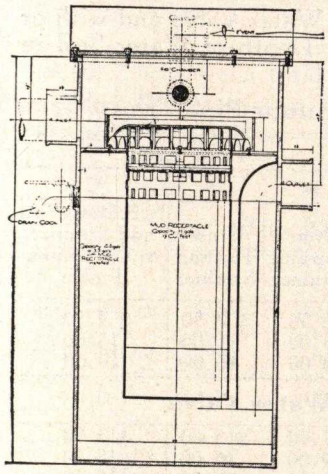


Fig. No. 115—Patented and Patents Pending

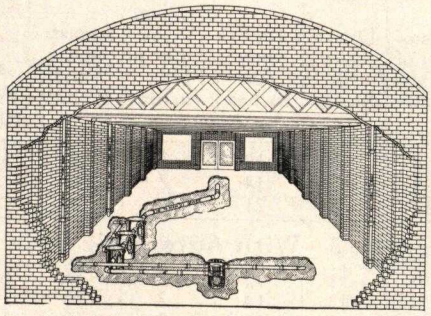


Fig. No. 0-62—Class "G" "PEERLESS" Public Garage

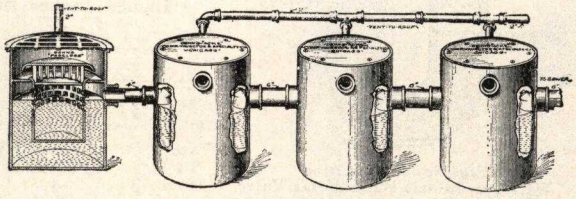


Plate No. 170—Class "G" "PEERLESS" Public Garage

This combination consists of 1 Fig. No. 0-62 20x38-inch "PEERLESS" Garage and Floor Drain, 3 Fig. No. 116-A 18x24-inch Special "ACME" Mud, Gas and Oil Garage Drainage Basins. Per set.....$200.00

Dehn's Specially Designed "PEERLESS" (Registered Trade Mark) Garage Floor Drain

Fig. No. 115 "PEERLESS" Garage Floor Drain is specially designed to be installed in basements of Garages when Floor Drains are required to be located on several floors above the first floor. This construction will permit discharging any number of Floor Drains into the Air-Tight Drain, and is of sufficient capacity to meet the requirements for every type of installation.

This system of garage drainage installation for high buildings where automobiles are housed above the first floor is very satisfactory and economical to install.

Our Fig. No. 0-6150 "PEERLESS" Garage Floor Drain should be installed on each floor in connection with this system. This will permit ventilating each floor separately and retain the solids in the receptacles in the drains on each floor.

Size of Outlet	Inches	6
Diameter of Top	Inches	24
Depth Over All	Inches	48
Approximate Weight	Pounds	1000
Fig. No. 115-A—Iron Top (Air-tight)	Each	$350.00

"Dehn's ACME" (Reg. Trade Mark) Cast Iron Special Mud, Gas and Oil, Blow-off, Gravel or Catch Basins

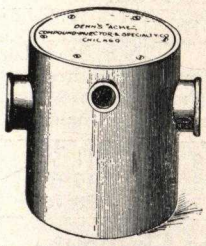


Fig. No. 116-A—Patented Special Gas Basin

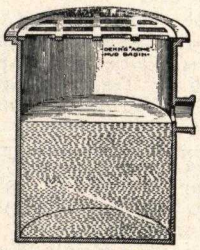


Fig. No. 116-B—Patented Special Mud Basin



Fig. No. 116-C—Patented Gas Basin Extension

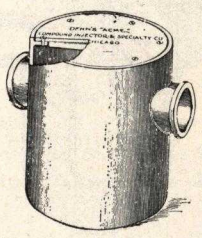


Fig. No. 117—Patented Blow-Off, Gravel or Catch Basin

These Basins are designed to be installed in connection with Garage Drainage Systems; to prevent sewers from becoming clogged; also to prevent gasoline and oils from finding their way into the sewerage system.

Fig. No. 116-A—X. H., 18x24-inch Special Mud, Gas and Oil Basin with two 6-inch Drainage Hubs and two 2-inch Vent Hubs	Each	$35.00
Fig. No. 116-B—X. H., 18x24-inch Special Mud Basin, with extra heavy bar grate, with one 6-inch Outlet Drainage Hub	Each	35.00
Fig. No. 116-C—X. H., diameter 18-inch, depth 6-inch	Each	12.00
Fig. No. 116-C—X. H., diameter 18-inch, depth 8-inch	Each	13.50
Fig. No. 116-C—X. H., diameter 18-inch, depth 10-inch	Each	15.00
Fig. No. 116-C—X. H., diameter 18-inch, depth 12-inch	Each	16.50
Fig. No. 117—16x24-inch	Each	30.00
Fig. No. 117—16x30-inch	Each	32.00
Fig. No. 117—18x24-inch	Each	35.00
Fig. No. 117—18x30-inch	Each	38.00
Fig. No. 117—20x24-inch	Each	$40.00
Fig. No. 117—20x30-inch	Each	42.00
Fig. No. 117—24x24-inch	Each	45.00
Fig. No. 117—24x30-inch	Each	50.00
Fig. No. 117—24x36-inch	Each	55.00

Additional Openings, as follows:

Iron Pipe Threaded, 2-inch	Net	$4.25
Iron Pipe Threaded, 3-inch	Net	5.25
Iron Pipe Threaded, 4-inch	Net	7.00
Soil Pipe Hubs, 2-inch	Net	4.75
Soil Pipe Hubs, 4-inch	Net	6.00
Soil Pipe Hubs, 6-inch	Net	7.75

All Basins are furnished with two 6-inch Hubs only opposite. An extra charge will be made when Basins are furnished with Traps or Seals, as follows:

Traps or Seals, 4-inch Outlet	Net	$5.00
Traps or Seals, 6-inch Outlet	Net	6.00

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DEHN'S
STANDARD
SANITARY
PRODUCTS
THE PIONEERS

The Original
Dehn's "ACME" "DEEP SEAL" Floor Drains

(Registered Trade Marks)

With Continuous Pipe Trap with or without Automatic Back Water Valve and with or without large Brass Taper-Threaded Cleanout flush with floor. Depth of Water Seal in Trap, 4 inches.

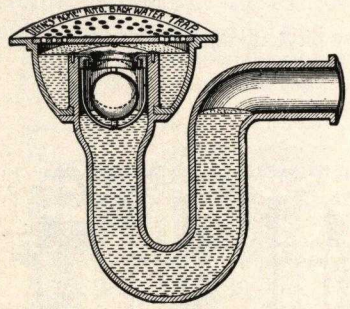


Fig. No. 5—Patented
With Automatic Back Water Valve

Fig. No. 3—Without Valve, With Continuous Pipe Trap

Size of Outlet Inches	Depth of Water Seal Inches	Diameter of Top Inches	Depth Over All Inches	Length Over All Inches	Receiver Above Outlet of Trap Inches	Approximate Weight Pounds	Price, Each A Iron Top and Strainer	B Brass Top and Strainer	C N.P. Brass Top and Strainer or Chromium Finish
2	4	8	10	12	2	20	$2.50	$ 7.50	$ 9.50
3	4	9	13	14	2	30	5.00	11.00	13.00
4	4	12	15	21	2	50	8.00	16.00	19.00

Fig. No. 5—With Automatic Back Water Valve

2	4	9	11	13	2	25	$7.00	$13.00	$15.00
3	4	9	13	14	2	35	9.00	16.00	18.00
4	4	12	15	21	2	60	12.00	20.00	23.00

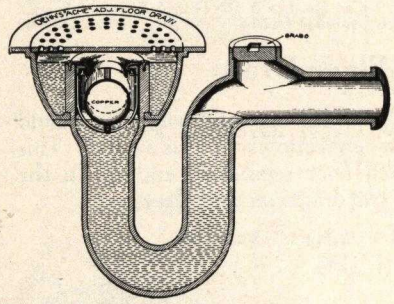


Fig. No. 7—Patented
With Automatic Back Water Valve
and Cleanout

Fig. No. 6—Without Valve, With Cleanout, Flush With Floor

Size of Outlet Inches	Depth of Water Seal Inches	Diameter of Top Inches	Depth Over All Inches	Length Over All Inches	Receiver Above Outlet of Trap Inches	Approximate Weight Pounds	Price, Each A Iron Top and Strainer	B Brass Top and Strainer	C N.P. Brass Top and Strainer or Chromium Finish
2	4	9	11	18	2	30	$4.00	$10.00	$12.00
3	4	9	13	20	2	40	7.00	14.00	16.00
4	4	12	15	22	2	65	10.00	18.00	21.00

Fig. No. 7—With Back Water Valve and Cleanout

2	4	9	11	18	2	35	$ 8.00	$14.00	$16.00
3	4	9	13	20	2	45	11.00	18.00	20.00
4	4	12	15	22	2	70	15.00	23.00	26.00

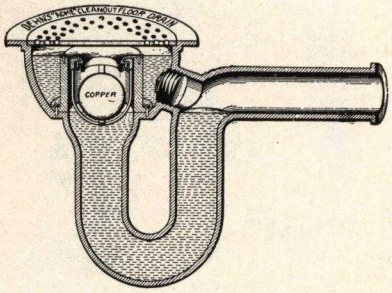


Fig. No. 9—Patented
With Automatic Back Water Valve
and Cleanout

Fig. No. 8—Without Valve, One Piece, With Cleanout

Size of Outlet Inches	Depth of Water Seal Inches	Diameter of Top Inches	Depth Over All Inches	Length Over All Inches	Receiver Above Outlet of Trap Inches	Approximate Weight Pounds	Price, Each A Iron Top and Strainer	B Brass Top and Strainer	C N.P. Brass Top and Strainer or Chromium Finish
2	4	9	11	18	2	25	$3.50	$ 9.50	$11.50
3	4	9	13	20	2	35	6.00	13.00	15.00
4	4	12	15	24	2	60	9.00	17.00	20.00

Fig. No. 9—With Automatic Back Water Valve and Cleanout

2	4	9	11	18	2	30	$ 7.50	$13.50	$15.50
3	4	9	13	20	2	40	10.00	17.00	19.00
4	4	12	15	24	2	65	14.00	22.00	25.00

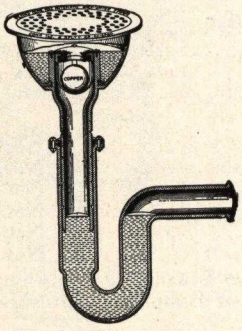


Fig. No. 17—Patented
With Automatic Back Water Valve

Fig. No. 16—Without Valve, Floor Drains With Adjustable Traps

Size of Outlet In.	Water Seal Inches	Receiver Above Outlet of Trap, Inches: Extreme Height	Receiver Above Outlet of Trap, Inches: Lowest Depth	Depth Over All Inches	Length Over All Inches	Diameter of Top Inches	Approximate Weight Pounds	Adjustment of Receiver Inches	Price, Each A Iron Top and Strainer	B Brass Top and Strainer	C N. P. Brass Top and Strainer or Chromium Finish
2	4	20	8	28	14	9	30	12	$ 8.00	$14.00	$17.00
4	4	30	15	38	20	12	75	18	20.00	30.00	33.00

Fig. No. 17—With Automatic Back Water Valve

2	4	20	8	28	14	9	35	12	$15.00	$21.00	$24.00
4	4	30	15	38	20	12	80	18	25.00	35.00	38.00

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The Original
Dehn's "ACME" "DEEP SEAL" Floor Drains

(Registered Trade Marks)

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With Continuous Pipe Trap (No Partitions) with extra Heavy Reinforced Iron Pipe threaded Outlet. In a large percentage of buildings, the Durham System (Iron Pipe Threaded) is installed.

Fig. No. 20—Floor Drain, Without Valve

Size of Outlet Inches	Depth of Water Seal Inches	Diameter of Top Inches	Depth Over All Inches	Length Over All Inches	Receiver Above Outlet of Trap Inches	Approximate Weight Pounds	Price, Each A Iron Top and Strainer	B Brass Top and Strainer	C N.P. Brass Top and Strainer or Chromium Finish
2	4	9	11	13	2	25	$ 4.00	$ 9.00	$11.00
3	4	9	13	14	2	35	7.50	13.50	15.50
4	4	12	15	21	2	55	11.50	19.50	22.50

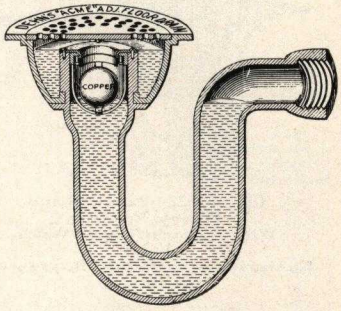


Fig. No. 21—Patented With Automatic Back Water Valve

Fig. No. 21—Floor Drain, With Automatic Back Water Valve Consisting of Brass Valve, Copper Cage and Float

2	4	9	11	13	2	30	$ 8.50	$14.50	$16.50
3	4	9	13	14	2	40	11.50	18.50	20.50
4	4	12	15	21	2	65	16.00	24.00	27.00

The Original

Dehn's "ACME" "DEEP SEAL" Floor Drains with Water-Tight Expansion Joint Shelf and Anchor.

These Floor Drains are especially designed for fireproof and concrete constructed buildings. In the past, it has been experienced when installing the ordinary floor drains, in concrete with cement, mosaic or tile floors, that it is impossible to make a water-tight joint on the floor at the drain. This results in the water leaking through the ceiling on the floor below, damaging merchandise or other materials and causing serious loss.

Dehn's "ACME" "DEEP SEAL" Floor Drains with these improvements with water-tight expansion joint shelf and anchors are positively guaranteed that the water will not find an opening at the drain to leak through the ceiling.

These fixtures are indispensable for use in toilet, bathrooms, laundries, swimming pools, factories, and store buildings, etc., where the drain is installed above the basement. Install these. They have no equal. No weepholes to permit the sewerage to back up and contaminate the surface around the drains.

The water-tight expansion joint-shelf and anchors can be furnished for every type and size "ACME" line Floor Drains.

Dehn's "ACME" "DEEP SEAL" Floor Drain with Water-Tight Expansion Joint Shelf and Anchors for Cement, Mosaic or Tile Floors. They have no equal. No weepholes to permit the sewerage to back up and contaminate the surface around the drains.

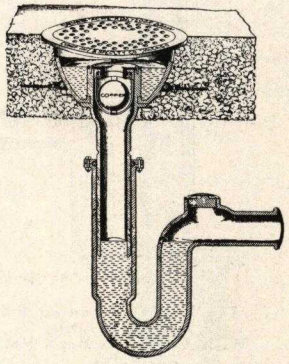


Fig. No. 37—Patented and Patents Pending With Automatic Back Water Valve

No weepholes to permit the sewerage to back up.

Fig. No. 30—Floor Drain, Without Valve, With Continuous Pipe Trap

Size of Outlet Inches	Depth of Water Seal Inches	Diameter of Top Inches	Depth Over All Inches	Length Over All Inches	Receiver Above Outlet of Trap Inches	Approximate Weight Pounds	Price, Each A Iron Top and Strainer	B Brass Top and Strainer	C N.P. Brass Top and Strainer or Chromium Finish
2	4	9	11	13	2	30	$ 7.00	$13.00	$15.00
3	4	9	13	14	2	40	10.00	17.00	19.00
4	4	12	15	21	2	65	14.00	22.00	25.00

Fig. No. 31—Floor Drain, With Automatic Back Water Valve

2	4	9	11	13	2	35	$12.00	$18.00	$20.00
3	4	9	13	14	2	45	15.00	22.00	24.00
4	4	12	15	21	2	75	20.00	28.00	31.00

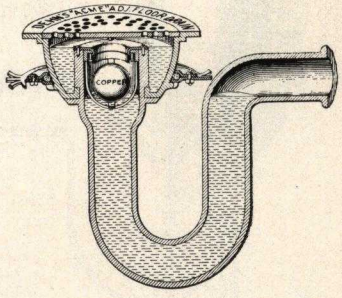


Fig. No. 31—Patented and Patents Pending With Automatic Back Water Valve

No weepholes to permit the sewerage to back up.

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DEHNS
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THE PIONEERS

The Original
Dehn's "ACME" "DEEP SEAL" Floor Drains

(Registered Trade Marks)

With Continuous Pipe Trap (No Partitions) with Water-Tight Expansion Joint Shelf and Anchors for Cement, Mosaic or Tile Floors, with Large Brass Taper threaded cleanout plug. They have no equal. No weepholes to permit sewerage to back up and contaminate the surface around the drains.

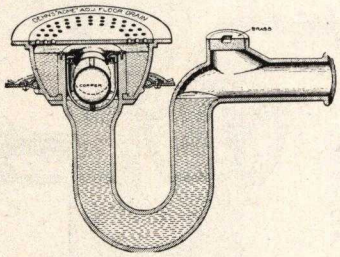


Fig. No. 33—Patented and Patents Pending
With Automatic Back Water Valve
No weepholes to permit the sewerage to back up

Fig. No. 32—Floor Drain, Without Valve, Balance of the Specifications same as Fig. No. 33

Size of Outlet Inches	Depth of Water Seal Inches	Diameter of Top Inches	Depth Over All Inches	Length Over All Inches	Receiver above Outlet of Trap Inches	Approximate Weight Pounds	Price, Each A Iron Top and Strainer	B Brass Top and Strainer	C N.P. Brass Top and Strainer or Chromium Finish
2	4	9	11	18	2	35	$ 9.00	$15.00	$17.00
3	4	9	13	20	2	45	13.00	20.00	22.00
4	4	12	15	22	2	75	18.00	26.00	29.00

Fig. No. 33—Floor Drain, With Automatic Back Water Valve

2	4	9	11	18	2	40	$14.00	$20.00	$22.00
3	4	9	13	20	2	50	18.00	25.00	27.00
4	4	12	15	22	2	80	24.00	32.00	35.00

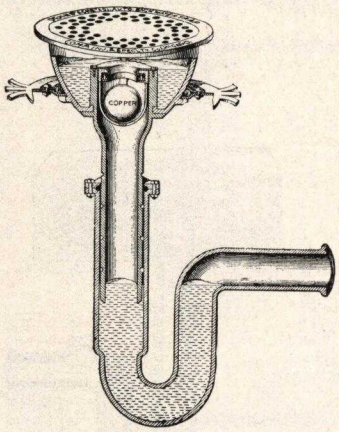


Fig. No. 35—Patented and Patents Pending
With Automatic Back Water Valve
No weepholes to permit the sewerage to back up

Dehn's "ACME" "DEEP SEAL" Floor Drains with adjustable Continuous Pipe Trap (No Partitions), with Water-Tight Expansion Joint Shelf and Anchors with Automatic Back-Water Valve. They have no equal. No weepholes to permit the sewerage to back up and contaminate the surface around the drains.

Fig. No. 34—Floor Drains, Without Valve

Size of Outlet In.	Depth of Water Seal Inches	Diameter of Top Inches	Depth Over All Inches	Length Over All Inches	Receiver Above Outlet of Trap Inches: Extreme Height	Receiver Above Outlet of Trap Inches: Lowest Depth	Adjustment of Receiver Inches	Approximate Weight Pounds	Price, Each A Iron Top and Strainer	B Brass Top and Strainer	C N. P. Brass Top and Strainer or Chromium Finish
2	4	9	28	14	20	12	12	40	$13.00	$19.00	$21.00
4	4	12	38	20	30	18	18	80	28.00	36.00	39.00

Fig. No. 35—Floor Drain, With Automatic Back Water Valve

2	4	9	28	14	20	12	12	45	$18.00	$24.00	$26.00
4	4	12	38	20	30	18	18	85	34.00	42.00	45.00

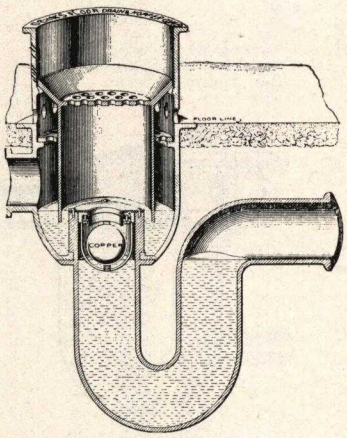


Fig. No. 47—Patented and Patents Pending
With Automatic Back Water Valve

Dehn's "ACME" Floor Drain and Hopper Combined with Continuous Pipe Trap (No Partitions), with Hub connection below Floor with Automatic Back Water Valve They have no equal. No weepholes to permit the sewerage to back up and contaminate the surface around the drains.

Fig. No. 47—Patented and Patents Pending

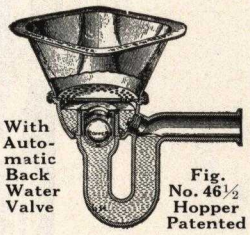
Size of Outlet	Inches	4
Water Seal	Inches	4
Size of Hub Inlet to Hood	Inches	4
Diameter of Top	Inches	12
Depth of Hood from Top of Receiver to Top of Hub	Inches	17
Depth over all	Inches	27
Receiver above outlet of Trap	Inches	14
Length over all	Inches	24
Approximate Weight	Pounds	100
Fig. 47—Iron Top and Strainer	Each	$35.00

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The Original
Dehn's "ACME" "DEEP SEAL" Hopper
(Registered Trade Marks)
combined with continuous pipe trap

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Fig. No. 46½—Patented			
Size of Outlet	Inches	2	3
Water Seal	Inches	4	4
Size of Top Over All	Inches	15	15
Depth Over All	Inches	18	20
Hopper Above Outlet of Trap	Inches	10	12
Length Over All	Inches	24	24
Approximate Weight	Pounds	50	60
Fig. No. 46½-A—Painted Inside and Outside	Each	$15.00	$20.00
Fig. No. 46½-B—Enameled Inside and Painted Outside	Each	20.00	25.00



With Automatic Back Water Valve — Fig. No. 46½ Hopper Patented

Dehn's "ACME" (Registered Trade Mark) Floor Drain with Continuous Pipe Trap (no partitions), with large Receiving Hood and Hubs for Connection below floor, with a Reliable Automatic Back Water Valve.

Fig. No. 50—Floor Drains With Automatic Back Water Valve

Size of Outlet Inches	Depth of Water Seal Inches	Diameter of Top Inches	Depth Over All Inches	Length Over All Inches	Receiver Above Center of Outlet of Trap Inches	Approximate Weight Pounds	Depth of Hood from Top of Receiver to Center of Hub Inches	Price, Each A — Iron Top and Strainer	Price, Each B — Brass Top and Strainer	Price, Each C — N. P. Brass Top and Strainer Chromium Finish
2	4	9	23	18	15	40	10	$15.00	$21.00	$23.00
3	4	9	25	20	16	50	11	18.00	25.00	27.00
4	4	12	28	24	12 or 18	100	6 or 12	25.00	35.00	40.00

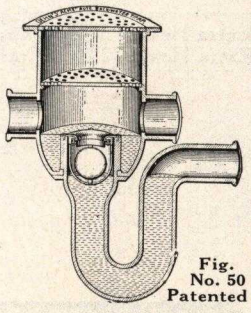


Fig. No. 50 Patented

With Automatic Back Water Valve

Dehn's "ACME" Automatic Back Water Valve
(Registered Trade Mark)
for Soil Pipe or Sewer Tile

Size of Outlet Fig. No. 52 Automatic Back Water Valve	Inches, Soil Pipe	3	Sewer Tile 4
Diameter of Top	Inches,	5½	
Depth Over All	Inches,	8	
Approximate Weight	Pounds,	8	
Price, A, Iron Top and Strainer	Each		$ 8.00
Size of Outlet Fig. No. 52	Inches, Soil Pipe	4	Sewer Tile 6
Diameter of Top	Inches,	7½	
Depth Over All	Inches,	10	
Approximate Weight	Pounds,	15	
Price, Iron Top and Strainer	Each		$12.00

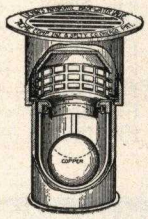


Fig. No. 52 Patented

With Automatic Back Water Valve

Dehn's "ACME" Floor Drains
(Registered Trade Mark)

With Large Receiver Straight Outlet. These drains are designed especially for use in cellars and areaways where sewers are put deep down in ground. The trap connecting with floor drain can be put in place when main sewer is put in. Furnished with or without Automatic Back Water Valve.

Fig. No. 53—Without Valve—With Large Receiver—Straight Outlet

Size of Outlet Inches	Diameter of Top Inches	Depth Over All Inches	Approximate Weight Pounds	Price, Each A — Iron Top and Strainer	Price, Each B — Brass Top and Strainer	Price, Each C — N. P. Brass Top and Strainer Chromium Finish
2	9	12	15	$4.00	$10.00	$12.00
3	9	12	20	6.00	13.00	15.00
4	12	15	30	8.00	18.00	21.00

Fig. No. 54—With Automatic Back Water Valve—Straight Outlet

2	9	12	20	$ 7.00	$13.00	$15.00
3	9	12	25	9.00	16.00	18.00
4	12	15	35	12.00	22.00	25.00

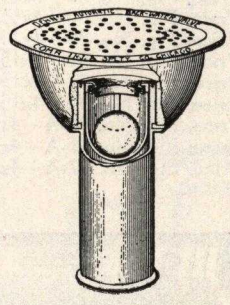


Fig. No. 54—Patented

With Automatic Back Water Valve

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The Original Dehn's Siamese Twin Tees

The Hub "Y" Branch connection on sanitary "T" can be installed to good advantage when soil pipe is desired for waste connections, also when threaded iron pipe is used for waste and objection is made to making final connection to stack with union or with right and left coupling. The only Sanitary Tee with Branch openings discharging below the 4-inch inlet. This construction permits continuous circulation of air through all branches.

Right-Hand Branch

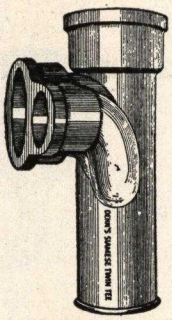


Fig. No. 70—Patented

Left-Hand Branch

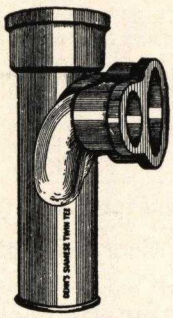


Fig. No. 71—Patented

Right and Left Branch

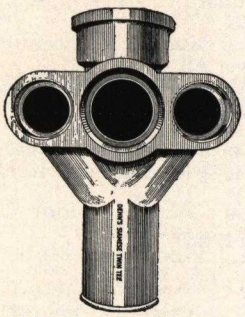


Fig. No. 72—Patented

Size	Inches 4
Extra Heavy, 2-inch Branch Fig. No. 70 Right, Fig. No. 71 Left-Hand Branch	Each $4.00
Extra Heavy, 2-inch Branches, Fig. No. 72 Right and Left-Hand Branch	Each 5.00

Dehn's "ACME" Adjustable Closed End Closet Bends

(Reg. Trade Mark)

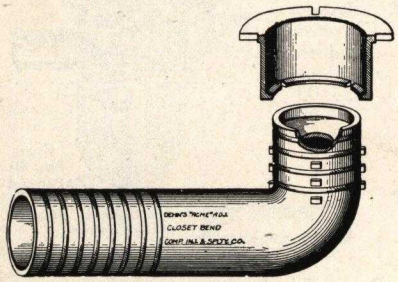


Fig. No. 77—Plain Patented

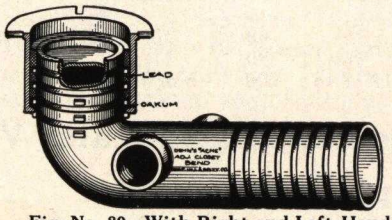


Fig. No. 80—With Right and Left-Hand Eccentric Tapped Inlets Patented

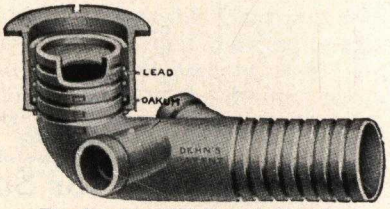


Fig. No. 86—"Y" Branch Hub End Eccentric Inlets Patented

Price, Fig. No. 77—4x15-inch X. H., Plain	Each $3.50
Price, Fig. No. 78—4x15-inch X. H., 2-inch or 1½-inch Tapped I. P., R. H., Inlet	Each 4.00
Price, Fig. No. 79—4x15-inch X. H., 2-inch or 1½-inch Tapped I. P., L. H. Inlet	Each 4.00
Price, Fig. No. 80—4x15-inch X. H., 2-inch or 1½-inch Tapped I. P., R. H. and L. H. Inlet	Each 4.50
Price, Fig. No. 84—4x15-inch X. H., with 2-inch R. H. Hub Inlet	Each 4.00
Price, Fig. No. 85—4x15-inch X. H., with 2-inch L. H. Hub Inlet	Each 4.00
Price, Fig. No. 86—4x15-inch X. H., with 2-inch R. H. and L. H. Hub Inlet	Each 4.50

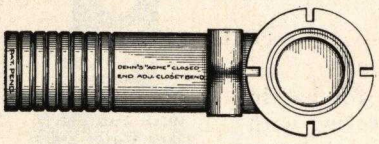


Fig. No. 89—With I. P. Vent Connections—Patented

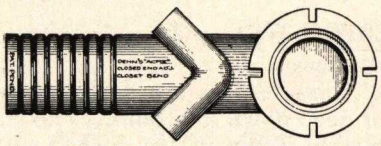


Fig. No. 92. With I. P. Vent Connections. Patented

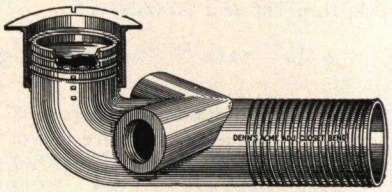


Fig. No. 92-A—With I. P. Waste Connections—Patented

Price, Fig. No. 87—4x15-inch X. H., 2-inch or 1½-inch Tapped I. P., R. H. Inlet	Each $4.00
Price, Fig. No. 88—4x15-inch X. H., 2-inch or 1½-inch Tapped I. P., L. H. Inlet	Each 4.00
Price, Fig. No. 89—4x15-inch X. H., 2-inch or 1½-inch Tapped I. P., R. H. and L. H. Inlet	Each 4.50
Price, Fig. No. 90—4x15-inch X. H., 2-inch Tapped I. P. R. H. Inlet	Each 4.00
Price, Fig. No. 91—4x15-inch X. H., 2-inch Tapped I. P., L. H. Inlet	Each 4.00
Price, Fig. No. 92—4x15-inch X. H., 2-inch Tapped I. P., R. H. and L. H. Inlet	Each 4.50
Price, Fig. No. 90-A—4x15-inch X. H., 2-inch or 1½-inch Tapped I. P., R. H. Inlet	Each 4.00
Price, Fig. No. 91-A—4x15-inch X. H., 2-inch or 1½-inch Tapped I. P., L. H. Inlet	Each 4.00
Price, Fig. No. 92-A—4x15-inch X. H., 2-inch or 1½-inch Tapped I. P., R. H. and L. H. Inlet	Each 4.50

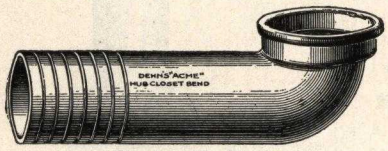


Fig. No. 99—Plain Patented

Price, Fig. No. 99—X. H. Plain	Each $3.50
Price, Fig. No. 103½—4x15-inch X. H., 2-inch or 1½-inch Tapped I.P., R.H. Inlet	Each 4.00
Price, Fig. No. 104½—4x15-inch X. H., 2-inch or 1½-inch Tapped I.P., L.H. Inlet	Each 4.00
Price, Fig. No. 105½—4x15-inch X. H., 2-inch or 1½-inch Tapped I.P., R.H. and L.H. Inlet	Each 4.50

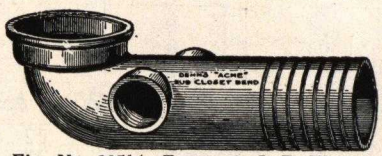


Fig. No. 105½—Eccentric I. P. Waste Connections—Patented

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The Original
Dehn's "ACME" Adjustable Closed End Closet Extensions
(Registered Trade Mark)

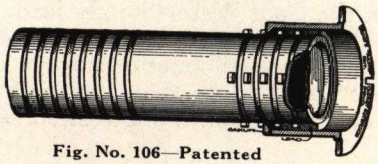


Fig. No. 106—Patented

Fig. No. 106—4x12-inch X. H. Plain.....each $3.00
Fig. No. 106—4x18-inch X. H. Plain.....each 3.50

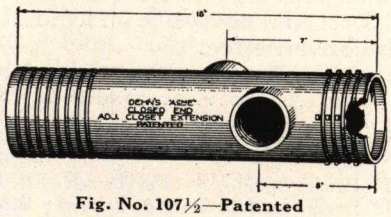


Fig. No. 107½—Patented

Fig. No. 107½—4x12-inch X. H., with two 2-inch I. P. threaded Tapped Eccentric Openings.....each $4.50
Fig. No. 107½—4x18-inch X. H., with two 2-inch I. P. threaded Tapped Eccentric Openings.....each 5.00

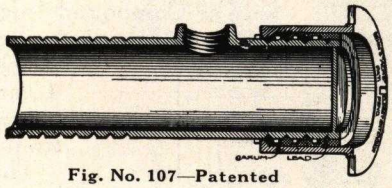


Fig. No. 107—Patented

Fig. No. 107—4x12-inch X. H., 2-inch I. P., threaded.....each $3.50
Fig. No. 107—4x18-inch X. H., 2-inch I. P., threaded.....each 4.00

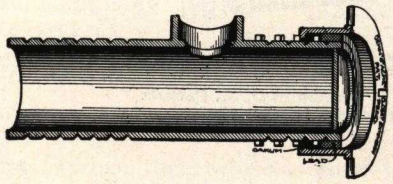
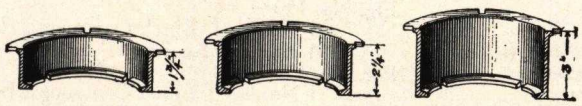


Fig. No. 108—Patented

Fig. No. 108—4x12-inch X. H., 2-inch Hub Opening.....each $3.50
Fig. No. 108—4x18-inch X. H., 2-inch Hub Opening.....each 4.00

Dehn's "ACME" Flanged Collars
(Registered Trade Mark)



Iron Flanged Collars, X. H. Fig. No. 93—Patented. Fig. No. 94—Patented. Fig. No. 95—Patented.
Brass Flanged Collars, X. H. Fig. No. 96—Patented. Fig. No. 97—Patented. Fig. No. 98—Patented.

Figures No. 93 to 95, inclusive, Iron Flanged Collars, X. H.....each $0.75
Figures No. 96 to 98, inclusive, Brass Flanged Collars, X. H.....each 1.50

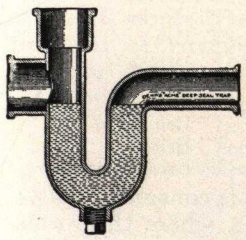


Fig. No. 500—Patented

Dehn's "ACME" "DEEP SEAL" Traps for Soda Fountains, Bars, Refrigerator Wastes or Floor Drains
(Registered Trade Marks)

Fig. No. 500. Deep Seal Trap

Size of Outlets.....inches	2	3	4
Water Seal.....inches	4	4	4
Each.....	$3.50	$5.00	$7.00

These 5-inch Deep Seal Traps are especially designed for installation, where the sewers are shallow in basements, and Floor Drains are required.

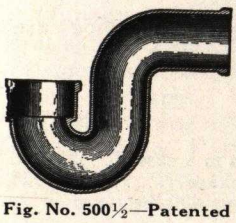


Fig. No. 500½—Patented

Fig. No. 500½—Deep Seal Trap, Size of Outlet, 3 inches. Each..... $4.00

Fig. No. 500½—Deep Seal Trap, Size of Outlet, 4 inches. Each..... 6.00

Fig. No. 600—5-inch Deep Seal Trap, Size of Outlet, 4 inches. Each..... 8.00

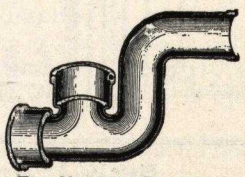


Fig. No. 600—Patented

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1897 ☆ 1932
DEHN'S
STANDARD
SANITARY
PRODUCTS
THE PIONEERS

Dehn's Automatic Water Softening and Scale Removing Devices

Dehn's Automatic Water Softening and Scale Removing Devices will overcome the accumulation of Lime, Magnesia and other incrusting minerals in Water Backs, Coils, Heaters, Tank, Laundry or Automatic Instantaneous Heaters, Boilers and wherever these difficulties are experienced.

The Compound Injector must be connected in the Cold Water Supply leading to range boiler or storage tank. This will allow the minerals separated from the water to precipitate at the bottom of range boiler or storage tank, where it can be drawn off at sediment cock. More than twenty-five years in universal use. For every type of installation. Follow directions to avoid trouble.

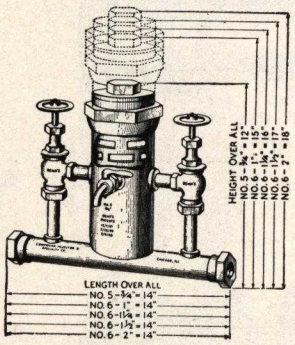


Fig. No. 118—Patented in U. S., Canada and Foreign Countries

The Water Softening Device must be installed where the water will be heated to a temperature of one hundred (100) degrees or more.

If Pipes, Coil, Water Back or Heater contain 50% or more precipitation, we recommend installing new Heating Apparatus.

A supply of "KomposT" Bricks should always be on hand. **Use Freely to Eliminate Expense and Inconvenience.**

Fig. No. 118—No. 5— ¾-inch	Each	$20.00
Fig. No. 119—No. 6—1 -inch	Each	25.00
Fig. No. 120—No. 6—1¼-inch	Each	30.00
Fig. No. 121—No. 6—1½-inch	Each	35.00
Fig. No. 122—No. 6—2 -inch	Each	40.00
Fig. No. 123—"KomposT" Bricks for No. 5	Per Dozen	6.00
Fig. No. 124—"KomposT" Bricks for No. 6	Per Dozen	9.00

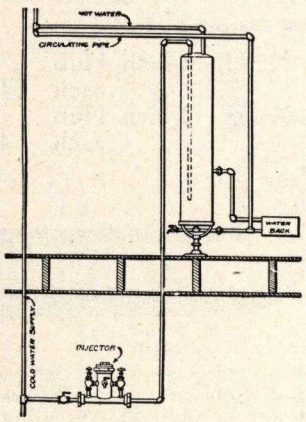


Plate No. 4—Where to connect Compound Injector in Residences

How to Order Compound Injectors and "KomposT" Bricks

Order the Compound Injectors according to size of pipes connecting with water back, coil, heater, boiler, etc.

Order by Figure Number in Catalog.

We Carry in Stock, packed ready for shipment, the fol'owing:

Fig. No. 128—
1 No. 5—¾-inch Compound Injector and
15 No. 5—"KomposT" Bricks

Fig. No. 129—
1 No. 6—1-inch Compound Injector and
24 No. 6—"KomposT" Bricks

Fig. No. 130—
1 No. 6—1¼-inch Compound Injector and
24 No. 6—"KomposT" Bricks

Fig. No. 131—
1 No. 6—1½-inch Compound Injector and
60 No. 6—"KomposT" Bricks

Fig. No. 132—
1 No. 6—2-inch Compound Injector and
60 No. 6—"KomposT" Bricks

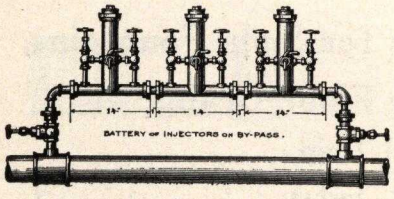


Plate No. 15—How to Install Compound Injectors in Batteries when the Supply is Larger than 2-Inch

"KomposT" Bricks are put up in the various size cases with the following number of "KomposT" type Bricks in same:

Fig. No. 133—Case No. 1 contains	30 No. 5 "KomposT" Bricks
Fig. No. 134—Case No. 2 contains	60 No. 5 "KomposT" Bricks
Fig. No. 135—Case No. 3 contains	100 No. 5 "KomposT" Bricks
Fig. No. 136—Case No. 4 contains	150 No. 5 "KomposT" Bricks
Fig. No. 137—Case No. 5 contains	30 No. 6 "KomposT" Bricks
Fig. No. 138—Case No. 6 contains	60 No. 6 "KomposT" Bricks
Fig. No. 139—Case No. 7 contains	100 No. 6 "KomposT" Bricks
Fig. No. 140—Case No. 8 contains	125 No. 6 "KomposT" Bricks
Fig. No. 141—Case No. 9 contains	150 No. 6 "KomposT" Bricks

For large institutions where a large volume of water is consumed daily; for general, domestic or high pressure steam purposes, where the water supply pipes are larger than 2-inch and it is desired to neutralize the water; in such institutions, it is recommended to install the Compound Injectors in batteries on the by-pass principle, similar to Plate 15, as illustrated.

The water can be used for the same purposes after these devices are installed as it was before.

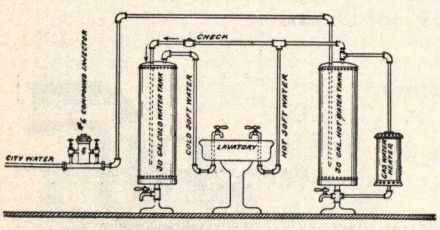


Plate No. 20—Copyright Beauty and Tonsorial Parlor Hot and Cold Soft Water Installation

"PeerlesS" Water Softener

For General Domestic Purposes

Fig. No. 125—1-lb. Package "PeerlesS" Water Softener, 1 Gross in a case	$36.00
Fig. No. 126—5-lb. Package "PeerlesS" Water Softener, per package	1.25
Fig. No. 127—Bulk "PeerlesS" Water Softener in barrels weighing 400 lbs., and up, per lb	.25

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THE DURIRON COMPANY, INC. DAYTON, OHIO

Duriron Sales Offices in the Following Cities

ATLANTA
Healey Bldg.
BIRMINGHAM
Webb-Crawford Bldg.
BOSTON
80 Boylston St.
BUFFALO
Jackson Building
CHARLOTTE
Builders Bldg.
CHICAGO
Straus Bldg.
CLEVELAND
Leader Bldg.
DALLAS
711 Westmount Ave.
DENVER
Exchange Bldg.
DES MOINES
Masonic Temple
DETROIT
General Motors Bldg.
HOUSTON
Post Dispatch Bldg.
KANSAS CITY
2014 Wyandotte St.
LOS ANGELES
Hollingsworth Bldg.



Made and sold in Canada by
Shawinigan Chemicals Limited
Montreal, Canada

MEMPHIS
Tennessee Hotel
MINNEAPOLIS
923 Nicollet Ave.
NASHVILLE
Stahlman Bldg.
NEW ORLEANS
816 Howard Ave.
NEW YORK CITY
22 East 40th St.
OKLAHOMA CITY
P. O. Box 411
PHILADELPHIA
Schaff Bldg.
PITTSBURGH
Empire Bldg.
RICHMOND
1714 Summit Ave.
SALT LAKE CITY
228 S. W. Temple St.
SAN FRANCISCO
Monadnock Bldg.
ST. LOUIS
Arcade Bldg
TACOMA
Tacoma Bldg.
WASHINGTON, D. C.
National Press Bldg.

Nearest Representative

Duriron

Duriron is a hard, close grained cast metal that is resistant to the action of practically all corrosives. Its signal advantages over other materials for acid handling are its greater strength, its universal resistance to corrosives, and the fact that it does not depend on a coating, lining or glaze, but is wholly and equally resistant clear through its structure.

Corrosive Test on Duriron

Tests made on Duriron over a period of 120 days duration, with many of the corrosives in general commercial use, prove that the life of Duriron pipe handling corrosive wastes is virtually unlimited.

Solution	Per cent of Loss	Depth of Corrosion in Inches, per Year
95% Sulphuric acid	.007	.0000206
25% Sulphuric acid	.016	.0000463
10% Sulphuric acid	.025	.0000685
70% Nitric acid	.006	.0000188
25% Nitric acid	.007	.0000206
10% Nitric acid	.000	.0000000
5% Hydrochloric acid	1.162	.00324
90% Acetic acid	.006	.0000188
87% Phosphoric acid	.006	.0000188
25% Phosphoric acid	.010	.0000292
10% Phosphoric acid	.008	.000024
7.9% Oxalic acid	.014	.0000412
2.1% Oxalic acid	.013	.000036
9.1% Picric acid	.005	.0000137
25% Copper sulphate	.008	.000024
27% Ammonium chloride	.026	.0000977
48% Ferric chloride	.013	.0000485
Commercial oleic acid	.003	.00000857

Comparative Physical Tests

The Testing Laboratories of Columbia University made an exhaustive series of tests, both chemical and physical, on vitrified tile, lead and Duriron pipe. The chemical tests show Duriron far superior in universal resistance. The physical tests are summarized below:

	Vitrified Pipe	Lead Pipe	Duriron Pipe
Average ultimate crushing load, lbs. per ft.	1556	1492	13490
Average transverse ultimate load, lbs., center load, span 21 in.	1813	400	11250
Modulus of rupture, computed from crushing load, lbs. per sq. in.	1644	*	17200

*Impossible to compute for a plastic material such as lead.

General Information

Duriron Acid-Proof Drain Pipe is installed the same and as easily as cast iron soil pipe. Duriron pipe and fittings have the same working dimensions as extra heavy soil pipe.

Duriron pipe is used for carrying acid wastes for which reason PURE asbestos rope packing should always be used, not hemp or oakum. Any PURE asbestos is suitable for this, but it is advisable to be sure that it is pure and not adulterated with cotton which will not withstand the action of acids. We manufacture a specially treated PURE asbestos rope packing (see page 7).

Duriron pipe joint should be made by first ramming the hub half full of pure asbestos packing then backing with molten lead, and caulking in usual manner. Do not have lead too hot.

For cutting Duriron pipe, which is much harder than ordinary pipe, we produce a pipe cutter designed for cutting Duriron (see page 7). It is a good time-saver and lessens the chance of breakage. Duriron pipe can be cut with cold chisel in the same manner as cast iron. There will be only a slight mark or scratch on the pipe, due to hardness, but running two or three times around the pipe will break it at the point of cutting. Laying pipe on sand bag when cutting absorbs shock.

Use a support for each joint of a Duriron line, and one at each bend.

Duriron acid proof pipe and fittings have been designed by leading authorities in Sanitary Engineering, and conform to the strictest requirements of all codes. The wall thickness of Duriron pipe is some greater than extra heavy cast iron pipe, so that it has slightly greater weight, piece for piece.

Duriron acid proof pipe and fittings are shipped crated or boxed. While amply strong for drain line purposes, Duriron should not be handled with undue roughness, nor subjected to shock. With reasonable care, any Duriron drain line installation may be made without loss from breakage.

Since Duriron pipe and fittings are shipped in crates or barrels, add about 20% to net weights to secure shipping weights.

The word "DURIRON" is cast on all pipe and fittings.

Terms and Conditions

All prices on Duriron are f.o.b. Dayton, Ohio.

Terms are net cash in forty-five days from date of invoice.

We will make replacement of any material that may develop hidden defects.

Errors on our part corrected promptly.

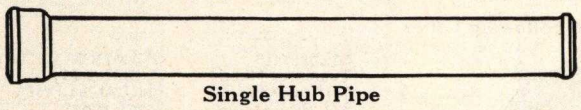
No material may be returned for credit without permission of this Company. A handling charge of 10% will be made on returned material when return is not due to our fault.

Cut pipe is not returnable. Material made special not returnable. No material accepted after six months.

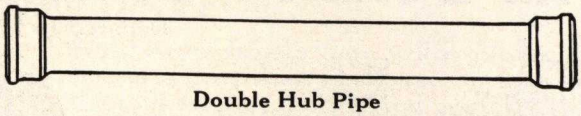
DISCOUNTS ON APPLICATION

Duriron Drain Pipe

Note that prices are **per piece** and not **per foot.** The terms "Bell and Spigot" and "Hub and Spigot" are used interchangeably. Ten, twelve and fifteen-inch pipe and fittings not stocked, but furnished promptly on order.



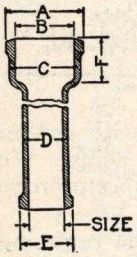
Single Hub Pipe



Double Hub Pipe

Size, Inches	Length, Feet	Over All Length	Weight, Lbs.	Price per Piece
1½	3	3' 2⅜"	17	$11.00
2	4	4' 2½"	30	16.40
3	5	5' 2¾"	58	27.80
4	5	5' 3"	88	37.80
6	5	5' 3"	143	65.00
8	5	5' 3¼"	227	116.00

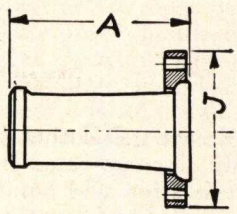
Size, Inches	Length, Feet	Over All Length	Weight, Lbs.	Price per Piece
1½	3	3' 2⅜"	18	$12.00
2	4	4' 2½"	34	18.90
3	5	5' 2¾"	60	35.00
4	5	5' 3"	90	43.00
6	5	5' 3"	148	71.00
8	5	5' 6¾"	240	124.00



Pipe and Fittings Dimension Table

Size	A	B	C	D	E	F
1½	3 13/16	2 13/16	3 7/16	2 1/8	2 3/8	2 3/8
2	4 5/16	3 5/16	3 15/16	2 5/8	2 7/8	2 1/2
3	5 5/16	4 5/16	5 1/16	3 5/8	3 7/8	2 3/4
4	6 5/16	5 5/16	6 1/16	4 5/8	4 7/8	3
6	8 1/2	7 5/16	8 1/16	6 3/4	7 1/8	3
8	11 1/4	9 5/8	10 3/4	9	9 1/4	3 3/8
10	14 1/4	12 1/4	13 3/4	11 1/4	11 5/8	3 5/8
12	16 3/4	14 1/2	16	13 1/4	14	3 7/8
15	20	17 3/4	19 1/2	16 1/2	17	4 1/8

All sizes in inches.



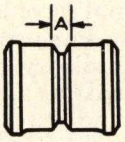
Adapter—Spigot and Split Flange

Size Inches	Weight Pounds	Price Each	Dimensions, In.	
			A	J
1½	6	$5.50	5¼	5
2	9	6.20	5¾	6
3	16	10.60	7	7½
4	24	16.40	8	9
6	32	23.00	9½	11
8	45	53.00	10¾	13½

Note: These prices include Split Flanges. Standard Bolt Dimensions.

Double Hubs

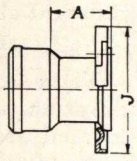
Size, Inches	Weight, Lbs.	Price, Each	A—Inches
1½	5½	$3.10	1
2	6½	3.90	1
3	9	6.40	1
4	15	10.00	1
6	24	15.20	1
8	41	38.00	2



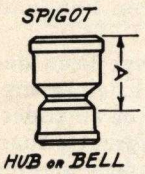
Adapter—Bell and Flange

Size Inches	Weight Pounds	Price Each	Dimensions, Inches	
			A	J
1½	7	$5.50	2⅛	5
2	9	6.20	2½	6
3	14½	10.60	2½	7½
4	21	16.40	2¾	9
6	30	23.00	3	11
8	35	53.00	3½	13½

Note: Bolt dimensions U. S. 1914 Standard.



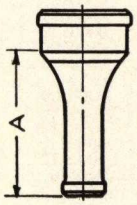
Sanitary Reducers



Size, Inches	Weight, Lbs.	Price	A—Inches
2x1½	5	$3.20	5
3x1½	6	3.60	5
3x2	7	4.50	5
4x1½	7	4.50	5
4x2	8	4.80	5
4x3	9	5.20	5
5x4	12	6.30	5
6x2	12	6.30	5
6x3	13	6.70	5
6x4	14	7.80	5
6x5	18	11.00	5
8x4	27	20.00	6
8x6	29	22.00	6

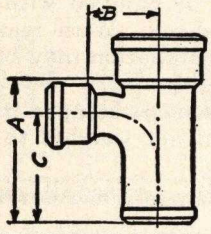
Prices of 10, 12 and 15-inch Fittings on request.

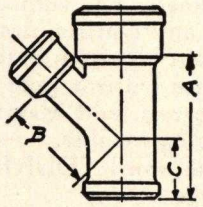
Sanitary Increasers

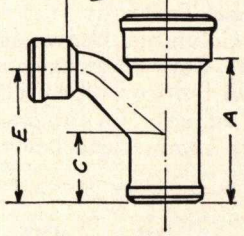


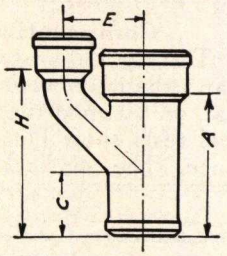
Size, Inches	Weight, Lbs.	Price	A—Inches
1½x2	7	$4.00	9
1½x3	8½	4.40	9
1½x4	10½	5.20	9
2x3	9	5.00	9
2x4	11	6.30	9
2x6	15	7.80	9
3x4	13	6.90	9
3x6	16	11.00	9
4x5	16	11.00	9
4x6	17½	12.70	9
4x8	43	30.00	11⅝
5x6	18	13.50	9
6x8	50	34.00	11⅞

Prices of 10, 12 and 15-inch Fittings on request.



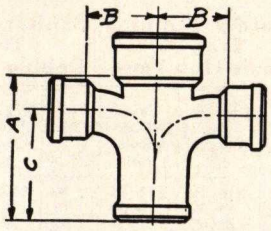


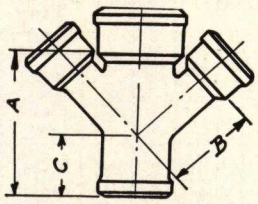


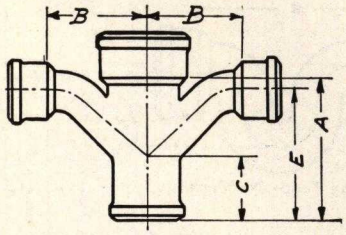


Size Inches	Sanitary T Branches					Sanitary Y Branches					Sanitary Combination Y and ⅛ Bend						Sanitary Upright Y Branch or H Fitting						Size Inches
	Wt. Lbs.	Price	A In.	B In.	C In.	Wt. Lbs.	Price	A In.	B In.	C In.	Wt. Lbs.	Price	A In.	B In.	C In.	E In.	Wt. Lbs.	Price	A In.	C In.	E In.	H In.	
1½x1½	9	$4.90	8⅜	3¼	6¾	9	$5.10	8⅛	3¾	4⅜	9	$5.35	8⅛	4⅝	4 3/8	7 3/8	9	$5.40	8⅛	4 3/8	4	10	1½x1½
2x1½	10	5.45	8½	3½	6¾	10	5.90	8⅝	4⅜	4⅜	11	6.00	8¾	4⅝	4 3/8	7 3/8	11	6.00	8¾	4 3/8	4¼	10¼	2x1½
2x2	11	6.10	9	3½	7	11	6.20	9	4¼	4¾	12	7.00	9	5¼	4 3/4	8 1/4	12	7.00	9	4 3/4	4½	11	2x2
3x1½	13	7.00	8½	4	6¾	13	7.70	8⅝	5	3 7/8	14	7.90	8⅝	5 1/8	3 7/8	7 3/8	14	7.90	8⅝	3 7/8	4¾	10¼	3x1½
3x2	14	7.60	9	4	7	14	7.80	9	5	4¼	15	8.20	9	5⅜	4 3/16	8 3/16	15	8.20	9	4 3/16	5	11	3x2
3x3	17	8.60	10	4	7½	17	8.90	10½	5½	5	19	10.30	10½	6½	5	9 5/16	19	10.30	10½	5	5½	12½	3x3
4x1½	16	8.70	8½	4½	6¾	17	8.80	9⅛	5⅜	3 7/8	18	10.00	9⅛	5 7/8	3 7/8	8 1/8	18	10.00	9⅛	3 7/8	5¼	10¾	4x1½
4x2	18	9.15	9	4½	7	18	10.00	9	5¾	3¾	19	11.50	9	6¼	3 11/16	8 5/16	19	11.50	9	3 11/16	5½	11	4x2
4x3	21	11.80	10	4½	7½	21	12.80	10½	6¼	4½	22	14.50	10½	7	4 1/2	9 9/16	22	14.50	10½	4 1/2	6	12½	4x3
4x4	22	13.60	11	4½	8	25	14.70	12	6¾	5¼	28	15.30	12	7¾	5 1/4	10 13/16	28	15.30	12	5 1/4	6½	14	4x4
6x2	35	16.80	9	5½	7	35	17.80	9	7⅛	2¾	26	18.40	9	7¼	2 11/16	8 5/16	36	18.40	9	2 11/16	6¾	11	6x2
6x3	39	19.00	10	5½	7½	39	20.00	10½	7⅝	3½	34	21.40	10½	8	3 1/2	9 9/16	41	21.50	10½	3 1/2	7¼	12½	6x3
6x4	44	19.50	11	5½	8	44	21.50	12	8⅛	4¼	36	23.20	12	8¾	4 1/4	10 15/16	46	23.20	12	4 1/4	8	14	6x4
6x6	52	24.00	13	5½	9	52	27.00	15	9¼	5¾	47	29.50	15	10¼	5 3/4	13 7/16	56	29.50	15	5 3/4	8½	16⅞	6x6
8x4	65	49.00	10⅝	6¼	8	65	66.00	13½	10	4½													8x4
8x6	72	59.00	14½	6⅝	10½	75	82.00	16½	11	6⅛													8x6
8x8	91	83.00	19	6⅝	13½	122	108.00	19½	12¼	7¼													8x8

Prices on 10, 12 and 15-inch Fittings on request.

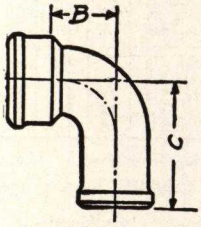




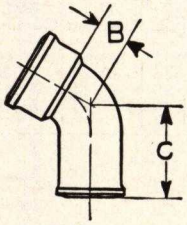


Size Inches	Double Branch Sanitary T					Double Branch Sanitary Y					Double Branch Sanitary Combination Y and 1/8 Bend						Size Inches
	Weight Pounds	Price	A In.	B+B In.	C In.	Weight Pounds	Price	A In.	B In.	C In.	Weight Pounds	Price	A In.	B+B In.	C In.	E In.	
1½x1½	11	$ 8.00	8⅜	6½	6¾	11	$ 8.50	8⅛	3¾	4⅜	14	$10.70	8⅛	9¼	4⅜	7⅜	1½x1½
2x1½	12	8.50	8½	7	6¾	13	9.10	8⅝	4⅜	4⅜	15	12.00	8¾	9¼	4⅜	7⅜	2x1½
2x2	14	11.50	9	7	7	15	12.00	9	4¼	4¾	18	14.00	9	10½	4¾	8¼	2x2
3x1½	13	13.00	8½	8	6¾	15	13.70	8⅝	5	3⅞	21	15.70	8⅝	10¼	3⅞	7⅜	3x1½
3x2	20	13.50	9	8	7	19	14.40	9	5	4¼	22	16.40	9	11½	4 3/16	8 3/16	3x2
3x3	21	14.00	10	8	7½	21	15.50	10½	5½	5	29	20.60	10½	13	5	9 9/16	3x3
4x1½	19	15.50	8½	9	6¾	20	15.70	9⅛	5¾	3⅞	24	20.00	9⅛	11¾	3⅞	8⅛	4x1½
4x2	20	16.00	9	9	7	21	16.80	9	5¾	3¾	26	21.00	9	12½	3 11/16	8 3/16	4x2
4x3	26	18.50	10	9	7½	27	20.10	10½	6¼	4½	30	27.90	10½	14	4½	9 9/16	4x3
4x4	33	22.50	11	9	8	33	23.10	12	6¾	5¼	45	30.00	12	15½	5¼	10 13/16	4x4
6x2	42	25.00	9	11	7	42	26.90	9	7⅛	2¾	44	31.00	9	14½	2 11/16	8 3/16	6x2
6x3	50	26.20	10	11	7½	51	30.00	10½	7⅝	3½	53	36.00	10½	16	3½	9 9/16	6x3
6x4	54	28.00	11	11	8	55	34.20	12	8⅛	4¼	57	45.30	12	17½	4¼	10 13/16	6x4
6x6	65	34.80	13	11	9	66	41.00	15	9¼	5¾	71	54.50	15	20½	5¾	13 7/16	6x6

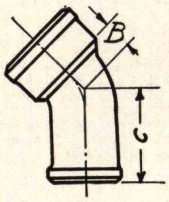
Prices on 10, 12 and 15-inch Fittings on request.



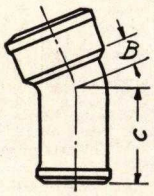
¼ Bend



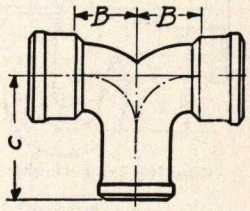
⅙ Bend



⅛ Bend

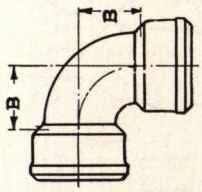


1/16 Bend

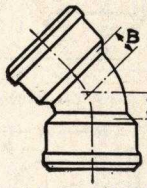


Double ¼ Bend

Size In.	Quarter Bends				Eighth Bends				Sixteenth Bends				Size In.
	Wt. Lbs.	Price	B In.	C In.	Wt. Lbs.	Price	B In.	C In.	Wt. Lbs.	Price	B In.	C In.	
1½	6	$ 4.00	3¼	6¾	5	$ 3.90	1 5/8	5 5/8	4½	$ 3.90	1	4 ½	1½
2	7	4.80	3½	7	6	4.50	1⅞	5 ¼	6	4.50	1⅛	4 5/8	2
3	12	6.20	4	7½	9	5.90	2	5 7/16	9	5.90	1¼	4 11/16	3
4	16	8.20	4½	8	13	7.80	2 ¼	5 11/16	12	7.80	1⅜	4 13/16	4
6	30	16.70	5½	9	25	16.20	2 ½	6 1/16	17	16.20	1½	5	6
8	67	50.00	6⅛	10	50	38.00	3 11/16	8 13/16	44	38.00	2	7 ⅛	8

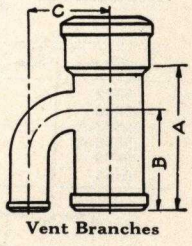


Double Hub ¼ Bend



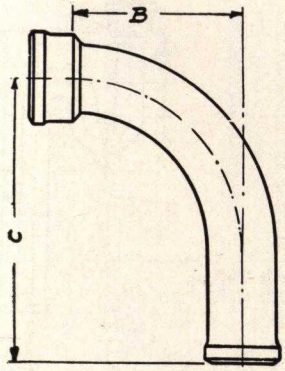
Double Hub ⅛ Bend

Size In.	Sixth Bends				Double Quarter Bends				Double Hub Quarter Bends			Size In.
	Wt. Lbs.	Price	B In.	C In.	Wt. Lbs.	Price	B+B In.	C In.	Wt. Lbs.	Price	B In.	
1½	3	$ 3.90	2	5⅝	11	$ 7.60	6½	6¾	8	$ 6.00	3¼	1½
2	7	4.50	2¼	5¾	12	9.30	7	7	9	7.00	3½	2
3	10	5.90	2½	6	17	13.50	8	7½	16	9.30	4	3
4	13	7.80	2¾	6 5/16	25	16.90	9	8	19	12.30	4½	4
6	27½	16.20	3⅜	6⅞	40	26.00	11	9	39	25.00	5½	6



Vent Branches

Size In.	Double Hub Eighth Bends			Long Sweep Quarter Bends				Pipe Plugs		Size In.
	Wt. Lbs.	Price	B In.	Wt. Lbs.	Price	B In.	C In.	Price	Wt. Lbs.	
1½	6	$5.80	1⅝	10	$10.50	8¼	11¾	$2.30	1½	1½
2	7	6.70	1¾	12	11.00	8½	12	2.60	2	2
3	13	8.80	2	19	13.00	9	12½	3.50	2½	3
4	17	11.70	2¼	28	21.00	9½	13	5.40	5	4
6	34	24.30	2½	50	35.00	10½	14	7.90	12	6

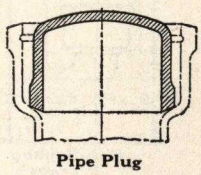


Long Sweep ¼ Bend

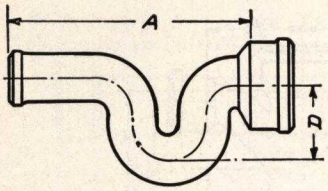
Vent Branches

Size In.	Wt. Lbs.	Price	A In.	B In.	C In.	Size In.	Wt. Lbs.	Price	A In.	B In.	C In.
2x2	11	$12.00	9	7	4½	4x4	26	$24.00	11	8	6½
3x2	14	14.00	10	7½	5	6x3	32	32.00	13	9	7
3x3	18	16.00	10	7½	5½	6x4	33	36.00	13	9	7½
4x2	18	20.00	11	8	5½	6x6	43	38.00	13	9	8½
4x3	20	22.00	11	8	6						

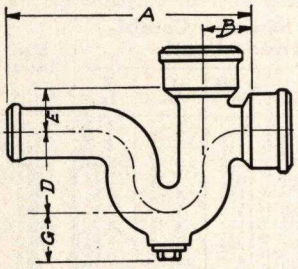
Prices of larger sizes on request.



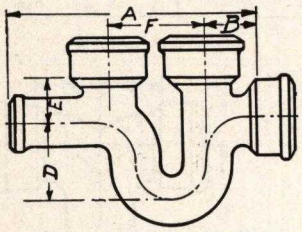
Pipe Plug



Running Trap—No Vent



Running Trap—Single Vent



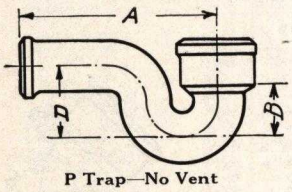
Running Trap—Double Vent

Size In.	Vent In.	A In.	B In.	D In.	E In.	F In.	G In.	Sanitary Running Trap—No Vent: Wt. Lb.	Price No Clean-out	Price With Clean-out	Sanitary Running Trap—Single Hub Vent: Wt. Lb.	Price No Clean-out	Price With Clean-out	Sanitary Running Trap—Double Hub Vent: Wt. Lb.	Price No Clean-out	Price With Clean-out
1½	1½	12⅛	1⅞	4	1⅞	4¾	2¾	9	$ 9.20	$10.20	13	$10.50	$11.50	16	$12.20	$13.20
2	2	13½	2½	4½	2½	5¼	3	13	13.70	15.20	17	15.60	16.60	19	16.80	17.00
3	3	15½	3	5½	3¼	6¼	4	21	18.60	20.10	27	21.00	22.50	32	22.50	24.00
4	4	17½	3½	6½	3½	7¼	4⅝	40	28.00	29.50	43	33.50	35.00	45	35.00	36.50
6	4	21½	4½	8½	4¼	8¼	5⅝	48	50.00	51.50	60	56.00	57.50	68	62.00	63.50
8	6	26⅞	4⅝	11	4¼	12	6	155	140.00	145.00	187	157.00	162.00	208	174.00	179.00

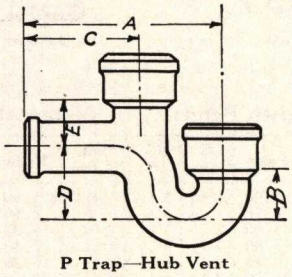
Size In.	Vent In.	A In.	B In.	C In.	D In.	E In.	Sanitary P Trap (or ½ S Trap)—No Vent: Weight Lbs.	Price No Cleanout	Price With Cleanout	Sanitary P Trap (or ½ S Trap)—Hub Vent: Weight Lbs.	Price No Cleanout	Price With Cleanout
1½	1½	10¼	2⅜	6⅛	4	1⅝	8	$ 5.60	$ 6.60	12	$ 8.40	$ 9.40
2	2	11	3	6¼	4½	2¼	11	7.70	8.70	15	9.50	10.50
3	3	12½	4¼	6¼	5½	3	19	16.80	18.30	24	17.80	19.30
4	4	14	5½	7	6½	3¼	27	19.80	21.30	38	23.70	25.20
6	4	17	8½	8	8½	4	82	77.00	80.00	80	95.00	98.00

Sanitary S Trap—No Vent: Size In.	Wt. Lb.	Price No Cleanout	Price With Cleanout	A In.	B In.	C In.	D In.	Sanitary S Trap—Hub Vent: Size In.	Wt. Lb.	Price No Cleanout	Price With Cleanout	Vent In.	A In.	B In.	C In.	E In.	F In.
1½	9	$ 6.50	$ 7.50	5⅛	2⅜	7	4	1½	13	$ 8.60	$ 9.60	1½	8⅜	2⅜	7	3¼	4⅛
2	14	9.00	10.00	5½	3	8	4½	2	16	10.20	11.20	2	9¼	3	8	3¾	4¾
3	22	17.20	18.70	6¼	4¼	10	5½	3	28	19.20	20.70	3	10½	4¼	10	4¼	6¼
4	32	22.00	23.50	7	5½	12	6½	4	39	25.50	27.00	4	11¼	5½	12	4¼	7
6	46	*	*	9	8½	16	8½	6	57	*	*	4	13	8½	16	4	9

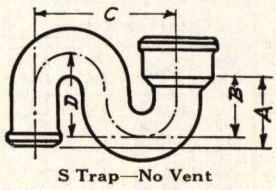
Note: Minimum Depth of Seal on All Traps is 2½ inches.
Prices on 10, 12 and 15-inch Fittings on request.
*Not carried in stock. Price on request.



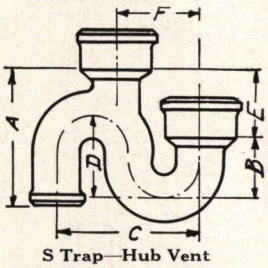
P Trap—No Vent



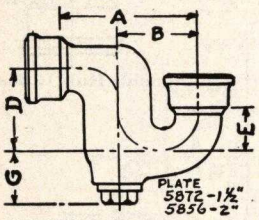
P Trap—Hub Vent

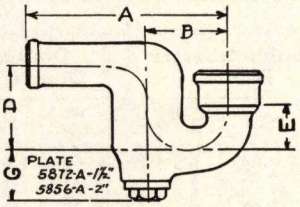


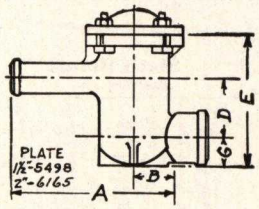
S Trap—No Vent



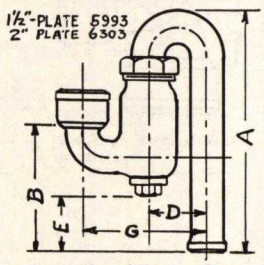
S Trap—Hub Vent





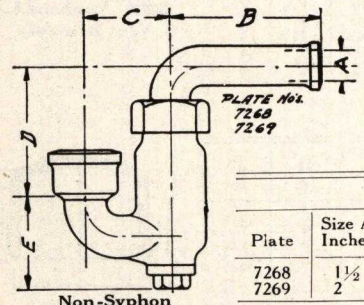


Drum Traps



Centrifugal Drum Trap (Non-Syphon)

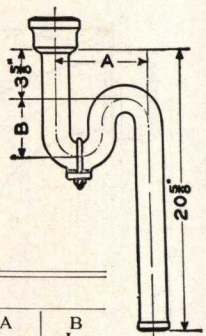
Plate	Size, Inches	Weight, Lbs.	Price	A, Inches	B, Inches	D, Inches	E, Inches	G, Inches
5872	1½	16	$12.80	6⅝	4¼	4½	1⅞	3⅜
5856	2	22	14.00	7¾	5	4½	2¼	3 9/16
5872-A	1½	14	12.80	12¼	4¼	4½	1⅞	3⅜
5856-A	2	20	14.00	13¾	5	4½	2¼	3 9/16
5498	1½	27	23.00	11	2⅝	4	9⅜	2⅜
6165	2	31	25.00	11⅜	2½	4½	10⅛	2⅝



Non-Syphon P Traps

Centrifugal Drum Traps (Non-Syphon)

Plate	Size In.	Weight Lb.	Price	A In.	B In.	D In.	E In.	G In.
5993	1½	23	$27.00	16½	8½	4	3¼	8½
5993-A	1½	29	38.00	24½	16½	4	11¼	8½
6303	2	38	31.50	20¼	13	5½	4	11
6303-A	2	44	42.50	28¼	21	5½	12	11



Long Sink Traps

Non-Syphon P Traps: Plate	Size A Inches	Weight Pounds	Price	B In.	C In.	D In.	E In.	Long Sink Traps: Plate	Size Inches	Price	A In.	B In.
7268	1½	18	$25.00	8	4½	6¾	5¼	5419-A	1½	$22.00	6¾	4¼
7269	2	28	29.00	8	5½	6	9	7075	2	26.00	7¾	5

Duriron Long Sink Traps—1½-inch Sink Traps may also be furnished with flared end for standard sink coupling at same price as bell end shown.

Sink Strainers

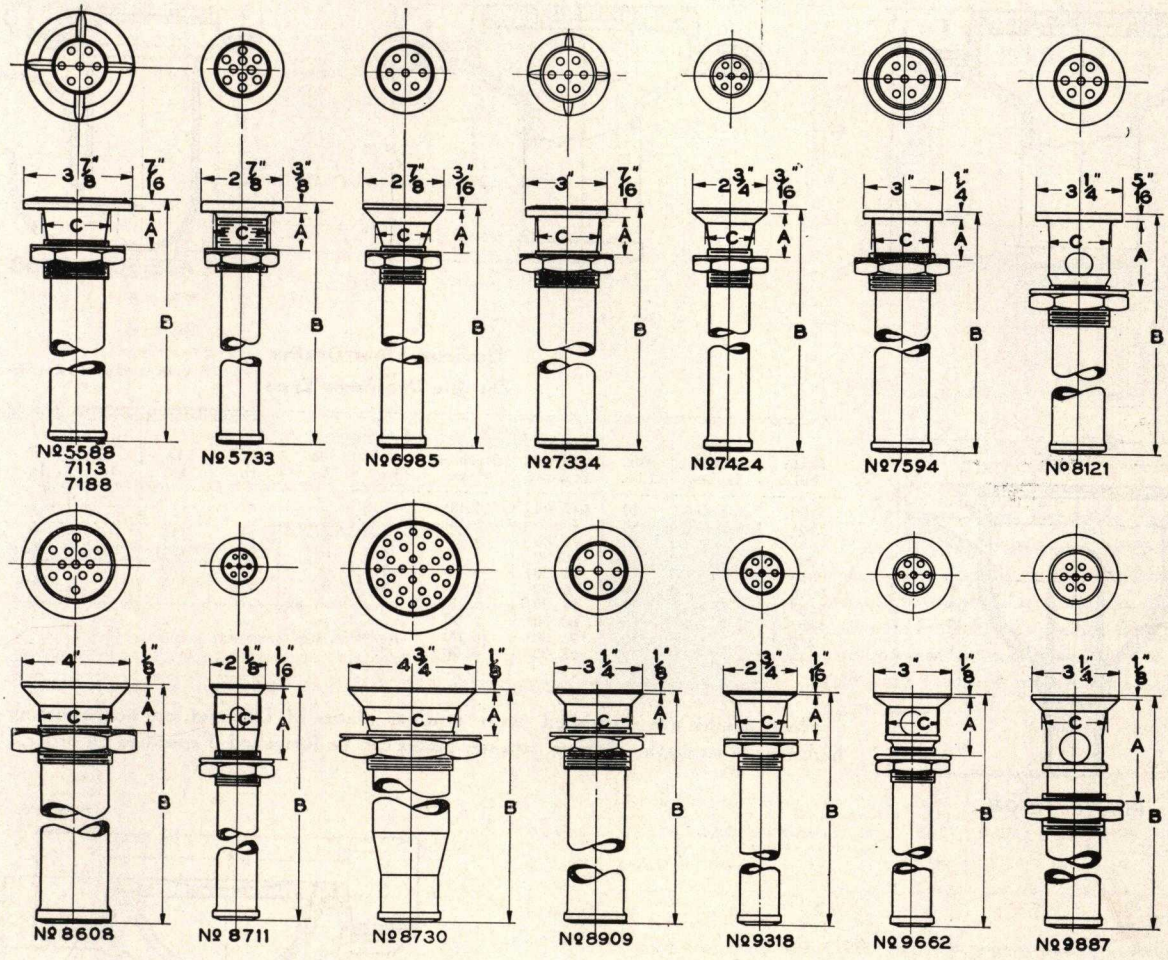


Plate No.	Size, Inches	A—Inches	B—Inches	C—Inches	Price
5588	1½ or 2	1 to 2¼	10	2½	$ 8.40
5733†	1	¼ to 2	8¼	2	8.40
6985	1	1 to 2¼	10	2¼	8.40
7113	1½ or 2	1 to 2¼	13	2½	9.50
7188†	1½ or 2	1 to 2¼	4⅝	2½	10.40
7334†	1½ or 2	1 to 2¼	10	2½	8.40
7424†	1	½ to 2	10	1¾	9.00
7594	1½ or 2	1 to 2¼	10	2½	9.50

Plate No.	Size, Inches	A—Inches	B—Inches	C—Inches	Price
8121†*	1½ or 2	2 to 3¼	10	2½	$12.50
8608†	2	1 to 2	5¼	3	9.50
8711†*	1	2 to 2¾	10	1¾	13.50
8730†	1½	1¼ to 2¼	7	3¾	12.50
8909	1½ or 2	1 to 2¼	10	2½	12.50
9318†	1	¼ to 1⅜	10	1¾	12.50
9662†*	1	1¼ to 2½	10	2¼	18.50
9887†*	1½ or 2	2¾ to 4¼	10	2½	22.00

Furnished with flat loose strainers. All except Nos. 5733, 8608, 8711, 8730 and 9662 can be furnished with Duriron stoppers. Price $2.00 each.

Standing Overflows

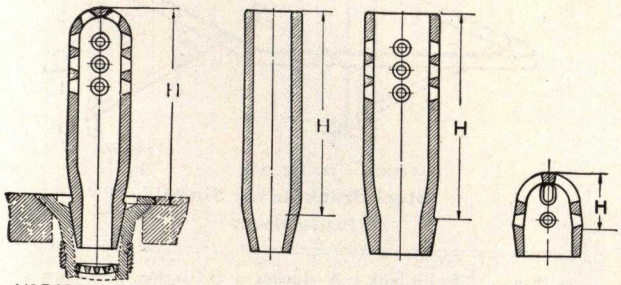


Plate	Height, Inches	Type	Price
5692	4½	Beehive	$4.60
5692-A	9	Beehive	6.60
8210†	5	Beehive	5.60
8889	10	Beehive	6.60
7189-B†	9½	Beehive	6.60
7189-C†	4	Beehive	4.60
7189-D†	6	Beehive	5.60
7189-E	8	Beehive	6.00
5962	9 max.	Open End	5.60
7796†	9 max.	Open End	6.60
7032	8½	Open End	6.60
7365†	1	Beehive	4.20

No standing overflows can be furnished for outlets Nos. 5733, 8608, 8711, 8730 or 9662.

†Not kept in stock. Shipment one week.

*For sink with patent overflow.

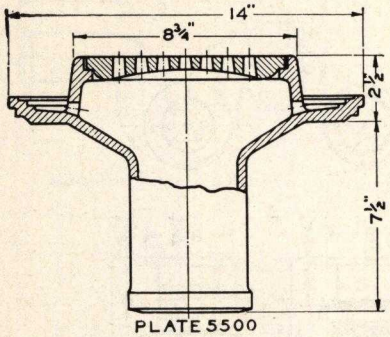


PLATE 5500

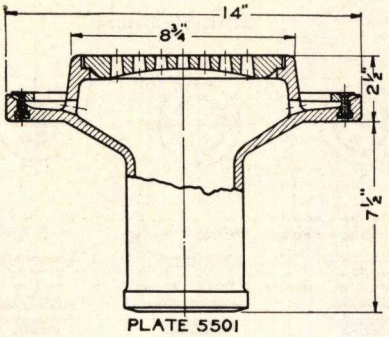


PLATE 5501

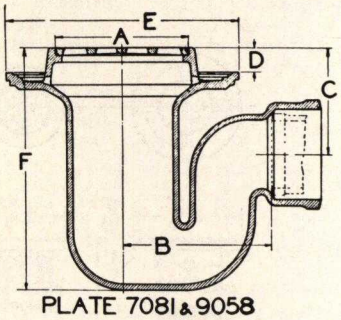


PLATE 7081 & 9058

Duriron Floor Drains
Double Drainage Type

Plate No.	Size Outlet Inches	Wt. Lbs.	Price With Strainer	Extra Strainer Price	A In.	B In.	C In.	D In.	E In.	F In.	Flashing Ring
5500	2–3–4–6	40	$42.00	$6.00	.....	.....	.....	.....	.....	.....	No
5501	2–3–4–6	40	45.00	6.00	.....	.....	.....	.....	.....	.....	Yes
7081-A	1½	30	40.00	3.60	4	6½	3⅞	1½	10⅜	9	No
7081-B	2	32	40.00	3.60	4	6½	3⅝	1½	10⅜	9	No
9058–3	3	75	76.00	6.00	8	9	5⅞	1½	14	14½	No
9058–4	4	79	76.00	6.00	8	9	6⅜	1½	14	14½	No
5687	2–3–4–6	72	57.00	5.00	.....	.....	.....	.....	.....	.....	No
5687-A	2–3–4–6	75	60.00	5.00	.....	.....	.....	.....	.....	.....	Yes
7270-B	3–4	270	196.00	16.00	.....	.....	.....	.....	.....	.....	No
9334	2	37	58.00	6.00	.....	.....	.....	.....	.....	.....	No

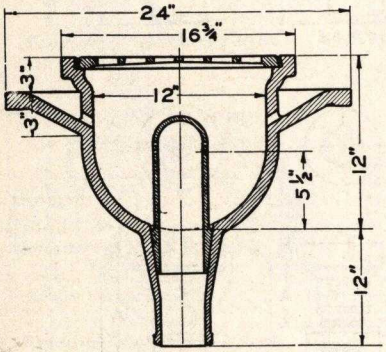


PLATE 7270-B

Floor drains are furnished with strainer plates of Durimet, an acid-resisting steel of high tensile strength. Duriron strainer plates can be furnished if specified on order.

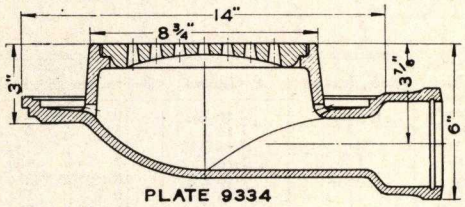


PLATE 9334

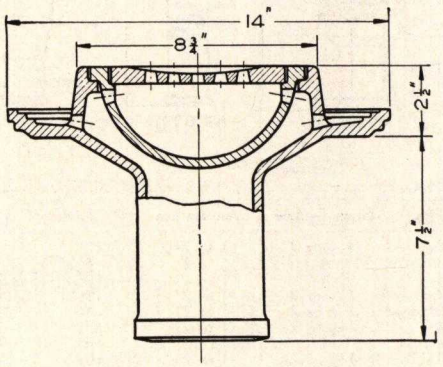
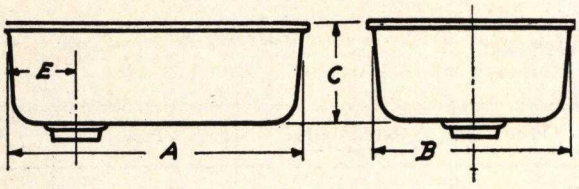


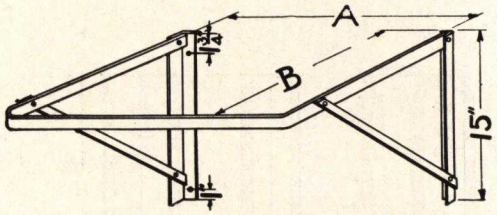
PLATE 5687



Duriron Sinks—Flat Rim

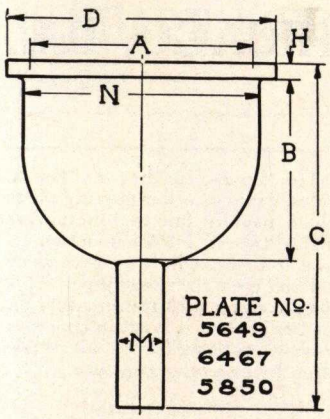
Plate	Weight, Lbs.	Price	A—Inches	B—Inches	C—Inches	E—Inches
5851	72	$49.00	16	14	8	5⅜
5852	103	63.00	24	16	8	5⅞
5853	120	70.00	28	16	8	5⅞
5964	73	50.00	17	9	10	8½
7924*	58	56.00	14	10½	9	5
7925*	68	60.00	16	12	9	5
8142*	45	52.00	15¼	7¼	7½	7¼

Duriron Sink Outlet (Plate 5588), included in above prices. Above dimensions are outside of sink under rim. Rim width, ½-inch; thickness, ⅝-inch. Other sizes sinks made to order. *Not carried in stock.



Steel Brackets for Sinks
(Painted Black)

Size	To Fit Sink	A—Inches	B—Inches	Price
1	5851	16⅛	14⅝	$7.00
2	5852	24⅛	16⅝	7.90
3	5853	28⅛	16⅝	7.90
4	5964	17⅛	9⅝	7.00



Hemispherical Laboratory Sinks

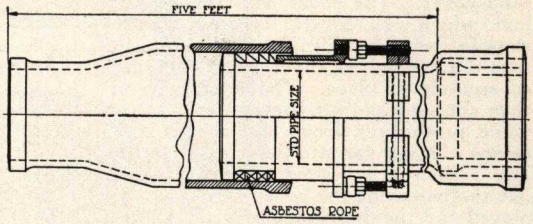
Hemispherical Laboratory Sinks
With Loose Flat Strainer Plate†

Plate	A Inches	Size (I. D.) Outlet, In.	Price	B Inches	C Inches	D Inches	H Inches	M Inches	N Inches
5649	5	1½	$12.00	5	11	6¼	⅜	2¼	5⅝
6467	6	1½	13.50	6	12	7½	½	2¼	6⅞
5850–1½	8	1½	14.00	4½	10½	9½	½	2¼	8⅞
5850–2	8	2	14.00	4½	10½	9½	½	2¾	8⅞
7332–1½	12	1½	30.00	6	12	13½	⅝	2¼	12⅞
7332–2	12	2	30.00	6	12	13½	⅝	2¾	12⅞

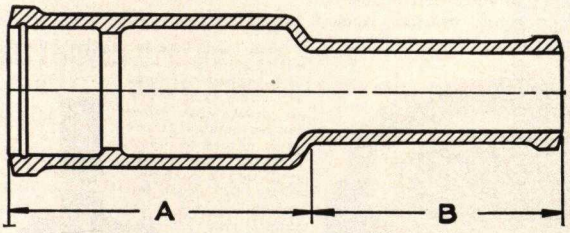
†For beehive strainer add $2.00.

Expansion Joints

Size, Inches	Weight, Lbs.	Price
3	70	$76.00
4	85	92.00
6	150	150.00

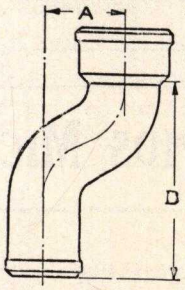


Expansion Joint

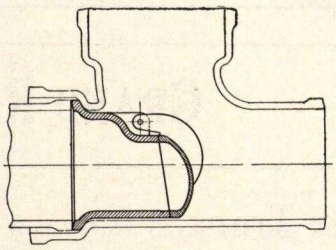


Duriron Insertable Joints

Plate	Size, Inches	A—Inches	B—Inches	Price	Weight, Lbs.
5045	2	7¾	6½	$7.50	11
5070	3	8⅜	7⅜	9.80	16
5095	4	9⅛	7⅞	14.90	22
5144	6	9⅛	7⅞	25.20	45



Sanitary Offset


Backwater Valve—Palmer Type

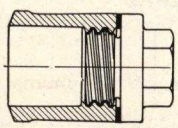
Sanitary Offsets

Size In.	Offset A. In.	B In.	Wt. Lbs.	Price	Size In.	Offset A, In.	B In.	Wt. Lbs.	Price
1½	2	8⅛	7½	$6.80	3	8	10½	16½	$12.00
1½	4	8⅝	9¼	7.20	3	10	11	18	22.50
1½	6	9⅛	9½	8.60	3	12	11½	19½	24.00
1½	8	9⅝	10½	9.00	4	2	9	19½	13.00
1½	10	10⅛	11½	17.50	4	4	11	23	16.00
1½	12	10⅝	12½	18.50	4	6	11	26	23.50
2	2	8	8	7.20	4	8	11½	29	27.50
2	4	8½	9½	7.80	4	10	12	34½	31.50
2	6	9	11	9.40	4	12	12½	37½	35.00
2	8	9½	14	10.00	6	2	10	33	28.00
2	10	10	15	18.50	6	4	12	38½	32.00
2	12	10½	16	19.50	6	6	13	44	36.00
3	2	8½	12	9.40	6	8	13½	48	40.00
3	4	9½	13	10.20	6	10	14	52	44.00
3	6	10	15	11.00	6	12	14½	55	48.00

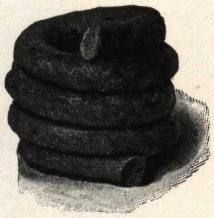
Backwater Valves Palmer Type

Duriron Cleanout Plugs

Size Inches	Price	Size Inches	Weight Pounds	Price
3	$25.00	1½	2¾	$7.50
4	47.00	2	3½	8.40
6	89.00	3	6½	10.50
8	98.00	4	11	15.00
Price does not include tee.		6*	14	17.50



*With bolted cover.



Duriron Rope Asbestos Packing

The Duriron Asbestos Packing is made from commercially pure asbestos, and is treated with special materials to make it most desirable for acid service. So that the correct amount may be calculated for the work, the following table of requirements per joint is given.

Size of Pipe, inches	1½	2	3	4	6	8
Weight in Lbs., per Joint	0.14	0.16	0.22	0.26	0.35	0.44
Length in Inches	10	12	16	19	26	33

One hundred feet (1200 inches) of this packing weighs 16 lbs.

In the packing of a joint, in order to make sure that there is no open space left when this packing is put in the bottom of the bell or hub, we recommend that the packing be separated into two or three strands and laid in so that the ends will overlap, and surely make a joint all the way round.

The amounts of packing given above, when caulked in tightly, fill up the bell or hub from 1½ to 1⅛ inches from the top, which space is left for the lead backing.

Duriron Rope Asbestos Packing, per pound $1.60

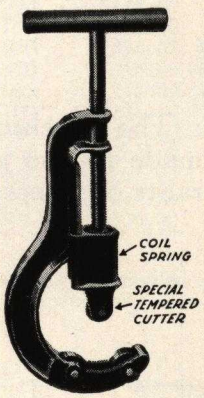
Duriron Pipe Cutter

Duriron is so hard that it cannot be cut with ordinary pipe cutter. We build a specially designed tool, with coil spring and tempered cutter, that reduces the time of cutting to a minimum.

Duriron pipe can be cut with cold chisel, but the saving in time by use of this tool quickly pays for itself when there is any great amount of cutting necessary on the job.

The coil spring between screw and cutter automatically takes up the slight surface variations occurring in all cast pipe.

This Pipe Cutter will handle pipe up to and including 4-inch pipe.



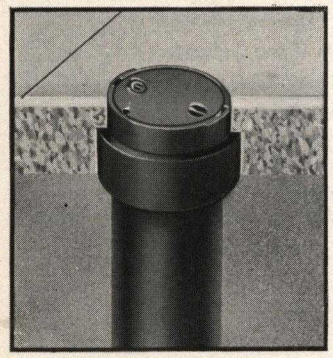
Duriron Pipe Cutter $22.00
Extra Cutter Wheels, each 1.50

THE LOCK-TITE DRAIN CO. CHICAGO, ILL.

4105 North Damen Avenue

The LOCK-TITE Floor Drain and Back Water Valve

The Lock-Tite Drain and back water valve consists of a sturdy cast iron body—removable grate—heavy rubber gasket—and a solid cover. The cover has two lugs which engage the tapered slots in the body and by a slight turn of the hand the cover is locked securely in place. The drain then acts as a perfect back water valve preventing floods and the escape of sewer gas into the building. When it is desired to flush out the basement the cover is removed and the drain then acts as an ordinary floor drain.





The Lock-Tite is a simple, practical floor drain especially designed to prevent the flooding of basements due to the backing up of house drains during heavy rains.

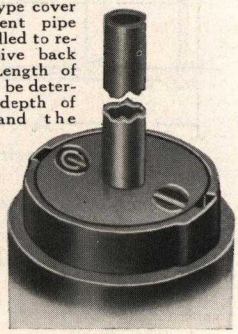


List Prices

With Solid Cover...$2.35
With Tapped Cover 2.55

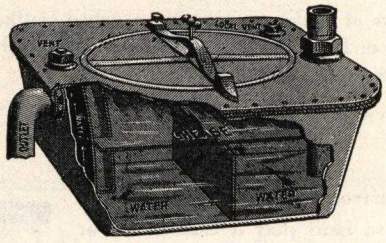
The Lock-Tite has no floats, slides, gates or other moving parts which usually fail to function at critical times. Its construction allows it to be solidly cemented or caulked over the drain pipe. This feature along with the shoulder on the body when it is set in concrete prevent its being forced out of position by excessive pressure.

The Lock-Tite is regularly furnished with a solid cover but can be had with ¾-inch tapped opening. With this type cover an open vent pipe can be installed to relieve excessive back pressure. Length of vent pipe to be determined by depth of basement and the general rise of water. In case of stoppage a hose can be connected to this pipe and the sewer flushed out under pressure.

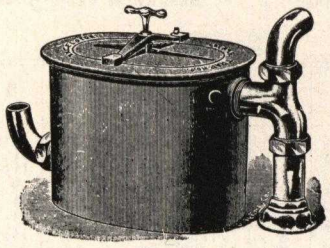


MCGURRIN SUPPLY COMPANY GRAND RAPIDS, MICH.

Excelsior Grease Traps



No. 1



No. 2

The Excelsior Grease and Sewer Gas Trap is made in two sizes, one for hotels and restaurants or where large quantities of greasy water is being discharged, and the other for use in private residences. Both designed and operated on the same principle.

Specifications

	Length	Width	Depth	Connection	Trimmings	Price Painted	Price Enameled Inside	Price Enameled Inside and Outside
No. 1.....	18-inch	12-inch	10-inch	2 -inch	Nickel Plated	$20.00	$27.00	$35.00
No. 2.....	12-inch	8-inch	9-inch	1½-inch	Nickel Plated	15.00	19.00	25.00

ELKHART FOUNDRY AND MACHINE CO. ELKHART, IND.

Established 1896 South Elkhart Avenue

Elkhart Standard Cast Iron Basins

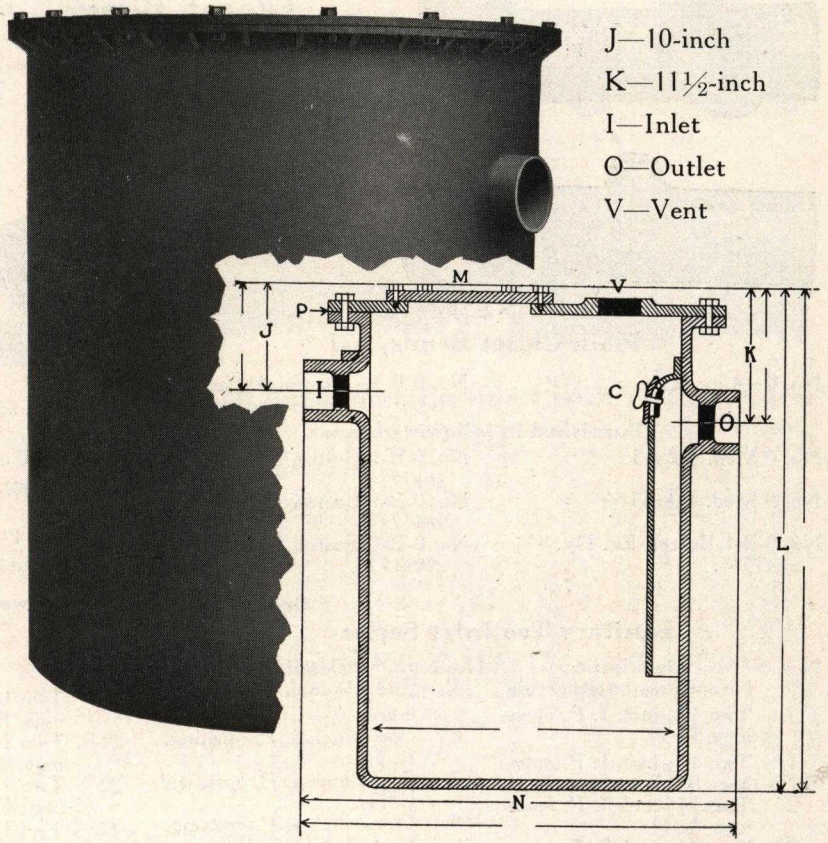
Standard Basin Specifications

The prices below cover basins furnished with one inlet, one outlet, one vent opening and either a handhole, manhole, solid or grated cover. Handholes are furnished on basins with 16 and 18-inch covers and manholes in the larger sizes. Outlet has deep water seal with clean-out. If more than one seal is required or if wanted without seal, order should so specify.

Inlet and outlet openings may be either combination soil and screw connections or threaded flanges. Vent opening will be supplied with either threaded or bell connection.

Upon your specification the location of inlets, outlets and vents can be located to meet your job requirements without additional cost.

All basins are regularly furnished with sealed joints between cover and body and between the flanges of body sections when supplied in more than one section.



Dimensions, Weights and List Prices of

Standard Cast Iron Basins, Catch Basins, Blow-Off Basins, Garage Basins, Gravel Basins, Mud Basins, Sump Basins for Sewerage Ejectors, Grease Basins, Floor Drainage Basins

Diam. Inches	Depth Inches	Weight Pounds	Price Each	Diam. Inches	Depth Inches	Weight Pounds	Price Each	Diam. Inches	Depth Inches	Weight Pounds	Price Each
16	16	225	$ 28.00	24	42	670	$ 84.00	36	54	1420	$180.00
16	20	250	30.00	24	48	725	92.00	36	60	1520	192.00
16	24	265	34.00	*24	54	785	100.00	*36	66	1620	211.00
18	18	276	34.00	*24	60	845	108.00	*36	72	1700	230.00
18	24	315	38.00	30	30	775	98.00	42	42	1590	178.00
18	30	355	44.00	30	36	860	108.00	42	48	1715	192.00
18	36	405	50.00	30	42	945	120.00	42	54	1830	206.00
20	20	315	38.00	30	48	1030	130.00	42	60	1950	218.00
20	24	350	44.00	30	54	1115	142.00	*42	66	2065	232.00
20	30	375	48.00	30	60	1200	152.00	*42	72	2190	246.00
20	36	440	56.00	*30	66	1285	164.00	48	48	2310	260.00
20	42	480	62.00	*30	72	1365	174.00	48	54	2500	280.00
20	48	520	68.00	36	36	1100	142.00	48	60	2660	298.00
24	30	540	68.00	36	42	1200	154.00	*48	66	2815	316.00
24	36	610	76.00	36	48	1330	168.00	*48	72	2985	336.00

*These basin bodies are made up of two or more sections with bolted flanged joints.

In addition to the above list we can furnish 54, 60 and 72-inch diameter basins. These, as well as the printed list, can be supplied in any desired depth, price and approximate weight furnished on application, also information on special and extra heavy basins.

When Ordering

Give diameter and depth of basin. If size and style of inlet, outlet and vent connections and locations are not given in order we will fill from our regular basin stock fitted with two 4-inch combination soil and screw pipe connections, sealed outlet and 4-inch vent on basin over 20 inches in diameter, 3-inch on 16, 18 and 20-inch.

THE EASTERN FOUNDRY COMPANY — BOYERTOWN, PA.

Representatives

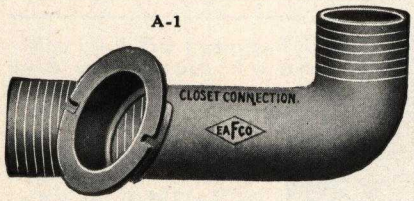
Brookline, Mass., P. J. McGoldrick, 214 Mason Terrace.
New York, N. Y., Henry W. Letcher, 50 Church St.

Philadelphia, Pa., J. L. Fritz, 462 Drexel Bldg.
Rochester, N. Y., A. R. Springer, 25 Grand Ave.

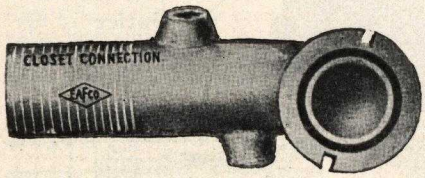
EAFCO TRADE MARK REG. U. S. PAT OFF.

Closet Bends

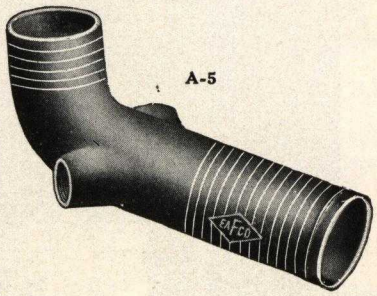
A-1



A-3



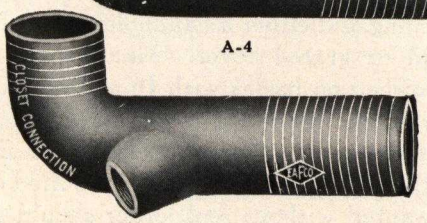
A-5



A-2



A-4



Plain Closet Bends, A-1

No. 0—4 in. diam.

No. 0-B-1—Boston, 4¼ in. diam Inlet—(Regular Outlet).

Furnished in following sizes:

No. 0 Med. 4x6x15.

No. 0 Med. 4x6x15½.

No. 0-B-1 Boston Ex. Hy. 4¼ x6x15½.

No. 0-B-1 Boston Ex. Hy. 4¼ x6x17½.

No. 0-B-1 Boston Ex. Hy. 4¼ x8x17½.

No. 0-B-1 Boston Ex. Hy. 4¼ x10x17½.

Tapped Closet Bends, A-2 to A-5

Size 4x6x15½, Medium and Extra Heavy.

A-2—1½ or 2 in. San. Tee Tapping, R. or L.

A-3—1, 1½ or 2 in. San. Tee Tapping, each side.

A-4—1½ or 2 in. Y Tapping, R. or L.

A-5—1, 1½ or 2 in. Y Tapping, each side.

Order by number as follows:

Sanitary Tee Inlet Series

Nos.	Description
0	No openings on either side.
1	Two 1½-inch I. P. openings, R. H.
1½	Two 1½-inch I. P. openings, R. H., and one, L. H.
2	Two 1½-inch I. P. openings, L. H.
2½	Two 1½-inch I. P. openings, L. H., and one, R. H.
3	One 1½-inch I. P. opening, Each Side.
3 A	Medium 4x6x15½ Raised Inlets high up on side. (Also No. 3B1—4¼" Inlet)
4	One 1½-inch I. P. opening, R. H.
5	One 1½-inch I. P. opening, L. H.
6	One 2-inch I. P. opening, R. H.
7	One 2-inch I. P. opening, L. H.
8	One 2-inch I. P. opening, Each Side.
9	Two 2-inch I.P. openings, R. H.
9½	Two 2-inch I. P. openings, R. H., and one, L. H.
10	Two 2-inch I. P. openings, L. H.
10½	Two 2-inch I. P. openings, L. H., and one, R. H.

Y Inlet Series

Nos.	Description
21	Two 1½-inch I. P. openings, R. H.
21½	Two 1½-inch I. P. openings, R. H., and one, L. H.
22	Two 1½-inch I. P. openings, L. H.
22½	Two 1½-inch I. P. openings, L. H., and one, R. H.
23	One 1½-inch I. P. opening, Each Side.
24	One 1½-inch I. P. opening, R. H.
25	One 1½-inch I. P. opening, L. H.
26	One 2-inch I. P. opening, R. H.
27	One 2-inch I. P. opening, L. H.
28	One 2-inch I. P. opening, Each Side.
29	Two 2-inch I. P. openings, R. H.
29½	Two 2-inch I. P. openings, R. H., and one, L. H.
210	Two 2-inch I. P. openings, L. H.
210½	Two 2-inch I. P. openings, L. H., and one, R. H.

Nos. 26, 27 and 28 furnished 6x 15½, 6x17½ and 8x17½.

Closet Flanges



A-6

A-6—Notched Pattern

No. 1—2½" Deep for 4" Diam. Bends.
No. 2—2½" Deep for 4¼" Diam. Bends.
No. 12—2" Deep for 4" Diam. Bends.

Can furnish No. 1 flange threaded 4-inch I. P. female.



A-7

A-7—Slotted Pattern

No. 3—2⅝" Deep for 4" Diam. Bends.
No. 4—2⅝" Deep for 4¼" Diam. Bends.
No. 4—4" Deep for 4¼" Diam. Bends.
No. 5—Pittsburgh Pattern 2½" Deep for 4" Diam. Bends.
No. 5—Pittsburgh Pattern 5" Deep for 4" Diam. Bends.
No. 6—Pittsburgh Pattern 2" Deep for 4" Diam. Bends.
No. 9—1⅜" Deep for 4" Diam. Bends.
No. 11—Detroit Pattern Flange 1⅜" Deep.



A-8

Threaded Hub Inlet

For tapped closet bends. Made in 45-degree and straight pattern.



A-9

Manhoff Hub

No. 1—Vent hub for 2-inch hub or 3-inch spigot and tapped for 1¼-inch, 1½-inch or 2-inch I. P. female. List....$0.25 each

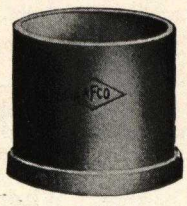


A-9½

Manhoff Caulking Sleeve

No. 3—2-inch spigot and tapped for 1¼-inch, 1½-inch or 2-inch I. P. List....$0.20 each

2x2 Manhoff Sleeve 5½ in. long.



A-10

Iron Drive Ferrule or Thimble

To drive into 4-inch lead pipe or lead bend.



B-10

Fresh Air Inlet

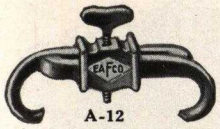
B-10—Pittsburgh Fresh Air Inlet. Made in two sizes: 4 and 6-inch. To caulk.



A-11

Trap Lid or Handhole Cover

Sizes	List
2-inch	$0.25
3-inch	.30
4-inch	.40
5-inch	.45
6-inch	.55



A-12

A-12
"Eafco" Adjustable Clamps

Can be adjusted for use on 2-inch to 6-inch fittings.

List each.....$0.50

B-12 Solid Clamp for Sure Seal Traps.



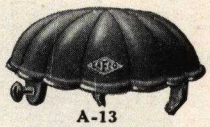
A-14

A-14—"Eafco" Repair Plates

Make an absolutely tight joint. Complete with bands, nuts and washers. Sizes 2, 3, 4, 5, 6 inches.

A-13—Fluted Vent Cap

4-inch, List each.....$0.85



A-13

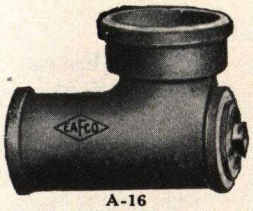
A-15—Rudolph Adjustable Soil Pipe Clamp

For Repairing Old Style Sure Seal Traps 2 to 6 inches inclusive.

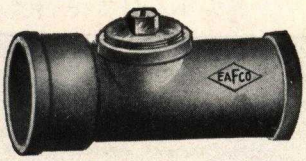


A-15

Cleanouts



A-16



A-17

A-16 Sanitary Tee Cleanout or Combination Y or ⅛ Bend, with brass plug.

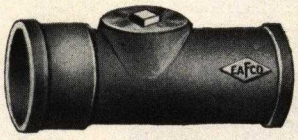
"Dixie" Fitting—Made in 2 and 4-inch sizes. Standard weight only.

Boston Regulation Tee Cleanout

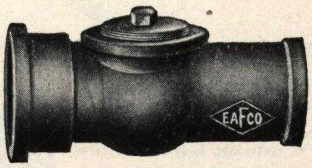
Brass Plug with Taper Thread

A-17—Extra heavy weight only. Takes the Boston Test Plug.

Size	Size of Plug	List
2-inch	2 -inch I. P. Size	$1.20
3-inch	3 -inch I. P. Size	1.45
4-inch	3½-inch I. P. Size	1.90
5-inch	4½-inch I. P. Size	2.40
6-inch	5½-inch I. P. Size	3.00
8-inch	7½-inch I. P. Size	9.25



A-18



A-19

Boston Regulation Cleanout with Flanged Cover

A-18—"Dandy" Cleanout with brass cap (Straight Thread). Has large opening to admit Test Plug. Meets the requirements of the New England trade.

Size	Size of Plug	List Standard	List Extra Heavy
2-inch	2 -inch I. P. Size	$0.75	$1.00
3-inch	3¼-inch O. D	1.00	1.25
4-inch	3½-inch I. P. Size	1.40	1.65
5-inch	4½-inch I. P. Size	1.80	2.10
6-inch	5½-inch I. P. Size	2.20	2.50
8-inch			8.00

Wilmington Regulation Cleanout or Globe Pattern Test Tee

A-19—With taper thread Brass Plug.

4-inch	4-inch I. P. Size	$4.25
5-inch	5-inch I. P. Size	5.50
6-inch	6-inch I. P. Size	8.00

Trap Screw Ferrules

Standard Iron Body with Brass Plug

A-20—Taper Thread



A-20

Size In.	Size of Brass Plug	Standard
2	1½-inch I.P.S., No. 11½ Thread	$0.30
3	2½-inch O. D., No. 12 Thread	.40
4	3-inch I.P.S., O.D., No. 12 Thread	.50
5	4-inch I.P.S., No. 8 Thread	.90
6	5-inch I.P.S., No. 8 Thread	1.20

B-20

B-20—4-inch Standard Boston Iron Body Trap Screw Ferrule with No. 33½ Brass Plug with Hollow Nut.

Beth-20—4-inch Standard Iron Body Trap Screw Ferrule with Brass Plug 1-inch High Solid Nut for Bethlehem, Boston and Baltimore.



A-22

Old Style New York Regulation

A-22—Extra Heavy, with Taper Thread.

Size In.	Size of Plug	Extra Heavy
2	1½-inch I. P. S	$0.60
3	2½-inch I. P. S	.72
4	3 -inch I. P. S	.85
5	4 -inch I. P. S	1.65
6	5 -inch I. P. S	1.95



A-24

New Style New York Regulation

A-23—Extra Heavy iron body and brass trap screw. Brass cleanout has solid nut 1-inch high. Diameter of Plug same as A-24.

Iron Body with Brass Cap

A-21—Straight Thread

Flanged Brass Cover



A-21

Size In.	Size of Brass Cap	Standard
2	1½-inch I.P.S., No. 11½ Thread	$0.30
3	2½-inch O.D., No. 12 Thread	.40
4	3-inch I.P.S., O.D., No. 12 Thread	.50
5	4-inch I.P.S., No. 8 Thread	.90
6	5-inch I.P.S., No. 8 Thread	1.20

B-21—Santa Barbara Pattern

Same as A-21 except with ¾-inch high nut.



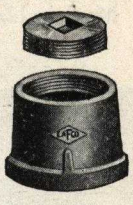
A-23

Boston, Ohio, Detroit and Baltimore Regulation

A-24—Extra Heavy, with full size opening to take test plug.

Size In.	Size of Plug	Extra Heavy
2	2 -inch I. P. S	$0.60
3	3¼-inch O. D., No. 8 Thread	.72
4	3½-inch I. P. S	.85
5	4½-inch I. P. S	1.65
6	5½-inch I. P. S	1.95

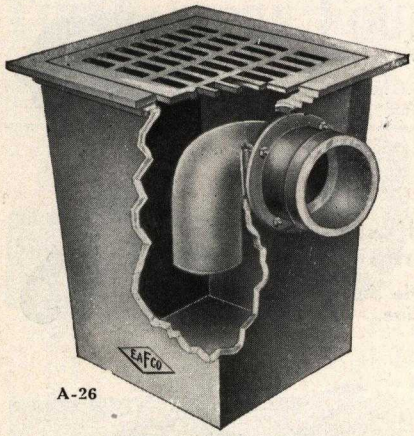
B-24—Standard. Boston Regulation with Flanged Cover, large opening to admit the Test Plug 3½-inch I. P. size opening.



A-25

Countersunk Plugs

A-25—All styles of Trap Screw Ferrules furnished with countersunk plugs if desired. Special prices.



A-26

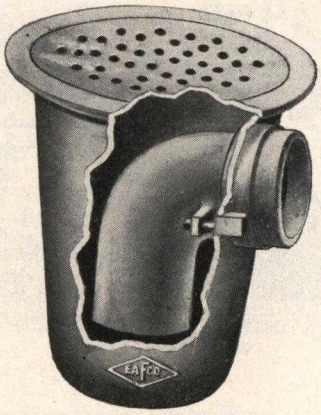
A-26—"Eafco" Sand Trap

Extra heavy cast iron with hub to suit 4-inch soil pipe. Dimensions, 14x14x18 inches deep. Philadelphia Regulation. Also furnished with brass cleanout plug in outlet bend.

B-26—Round Pattern Garage Sand Trap

A strictly high grade garage trap. Has heavy strainer, strong enough to bear weight of any machine. Diameter at top 14 inches. Depth from top of strainer to bottom (18 inches inside). No bolts on outside of body. Bend may be removed without disturbing body of trap or drain line, making it easy to remove stoppage in drain or sand from body of trap.

Designed for Philadelphia Regulation, but meets requirements everywhere.



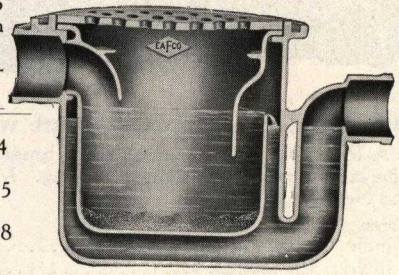
B-26

A-27—McDermott Sand Trap and Gas Eliminator

Gray cast iron with deep seal. Trap is integral with fixture.

Furnished in the following sizes:

Outlet, In..	2	3	4
Diam., In..	12	12	15
Depth, In..	12	12	18
Trap Seal, In..	4½	4½	6
List...	$35.00	$40.00	$50.00



A-27



A-28

A-28—Extra Heavy Stable Cesspool

With Heavy Bar Grate

Philadelphia Regulation with set screws to caulk 12x12 and 14x14. Furnished with inside strainer and Bell.

Old Style (Not Caulkable) 3-Inch Outlet

Sizes 12x12, 14x14 and 16x16.

A-29—Combination Rainleader and Cesspool



A-29
Straight Pattern
A-30
Offset Pattern

Philadelphia Regulation with long outlet to caulk into bell of 4-inch Soil Pipe. A "Two-in-one" article—saves money on every job. **Straight pattern.** (Manufactured under patent license.)

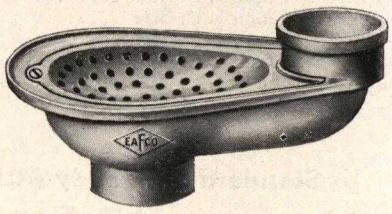
A-30—Combination Rainleader and Cesspool

Philadelphia Regulation **Offset Pattern.** To caulk in 4-inch Soil Pipe.

C-30—The Universal "Tight" Combination Rainleader and Cesspool

A Combination Cesspool and Rain Conductor connection with solid frame and loose strainer that may be removed or replaced without disturbing the cement. Has large outlet to caulk over 4-inch Soil Pipe.

"Eafco" castings are carefully made of best grey Iron.



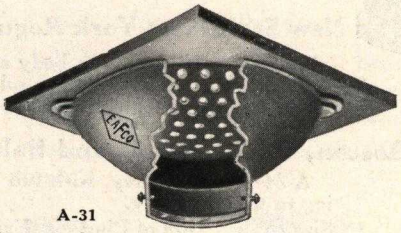
C-30

A-31—Philadelphia Regulation "CAULKIT" Tight Pattern Cesspool

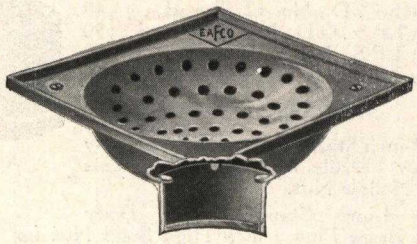
With large outlet to caulk over 4-inch Soil Pipe. Caulks from inside when strainer is removed. Three Brass Set-Screws in outlet to hold body of cesspool rigid while caulking. Adjustable to any height.

Body is tight. No need to disturb cement pavement when removing strainer to clean out stoppage.

Made in 12x12-inch size only.



A-31

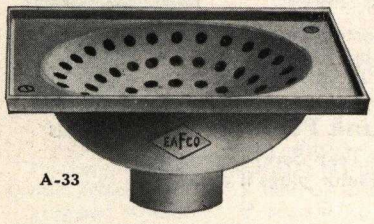


A-32

No. 2 Philadelphia Regulation Caulkable Cesspool

To caulk over 4-inch Soil Pipe. Furnished with or without set screws. Size 12x12. Furnished regularly with lugs.

Plain Bolted Top Cesspool



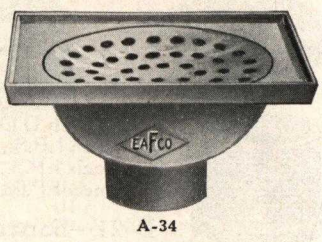
A-33

Sizes, In.	Outlet	List
10x10	3-inch	$1.10
12x12	3-inch	1.50
14x14	3-inch	2.00
16x16	3-inch	2.75
Iron Body, Polished Brass Top		6.50

Galvanized or threaded I. P. to order.

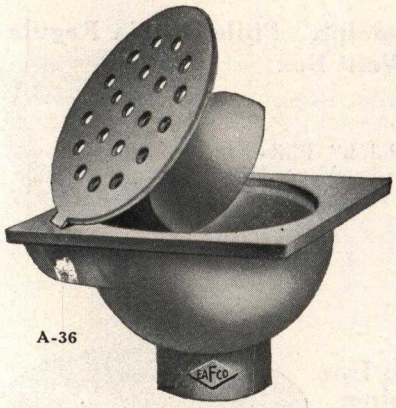
Bell Trap Cesspool, Raised Edge

Sizes, In.	Outlet	List
6x 6	2-inch	$0.75
8x 8	3-inch	.90
9x 9	3-inch	1.00
10x10	3-inch	1.25
12x12	3-inch	1.75
12x12	4-inch	1.75
13x13	4-inch	2.00
13x13	4-inch, extra heavy	3.00
12x12	3-inch, Iron Body, Polished Brass Top	7.50



A-34

Galvanized or threaded I. P. to order. **A-35** same as A-34 except with **flat top.** Same prices.



A-36

A-36
Bell Trap Cesspool with Hinged Lid

Sizes, In.	Outlet	List
6x 6	2-inch	$1.00
8x 8	3-inch	1.25
9x 9	3-inch	1.35
9x 9	4-inch	1.45
10x10	4-inch	1.60
12x12	4-inch	2.00
13x13	4-inch	2.50
6x 6	2-inch Iron Body, Polished Brass Top	3.25

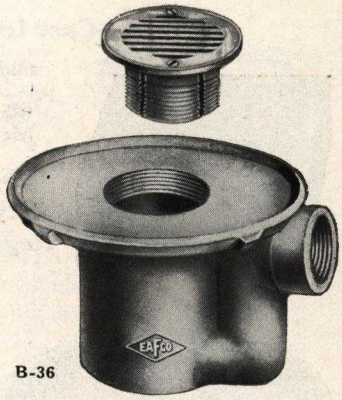
Galvanized or threaded I. P. to order.

B-36
Saftee Shower Drain and Trap

No. 1 Cast Iron "Saftee" Shower Drain and Trap with Nickel Plated or Chromium Plated Brass P/O Type Slotted Strainer with 1½ or 2-inch I. P. female outlet. The slots do not clog. No danger from seepage.

No. 10 Strainer has Heavy Edge for tile or concrete work.

No. 12 Strainer has Feather Edge for Enameled Receptor.



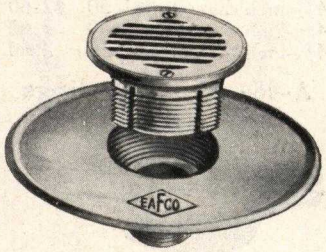
B-36

C-36—Saftee Shower Drain

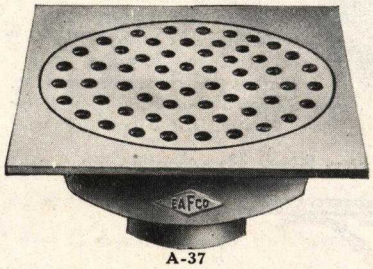
No. 2 Cast Iron "Saftee" Shower Drain (No Trap) with Nickel Plated or Chromium Plated Brass P/O Type Slotted Strainer, 2-inch I. P. Male Outlet.

(Can be furnished with 3-inch I. P. Male Outlet and 2-inch I. P. Female Outlet on spceial order.)

The No. 2 Drain is furnished with the No. 10 Heavy Edge and No. 12 Feather Edge Strainers with large slots, same as furnished with the No. 1 Drain and Trap.



C-36



A-37

A-37—Washington Flat Top Cesspool No Bell Trap

For Washington, D. C.

Size 11x11 inches.

Can be furnished with or without Bell Trap.

A-40—No. 2—Shallow Pattern Refrigerator Drain

With loose Bell Trap Strainer. 10-inch Diameter—2 3/16 inches deep. Tapped 1¼-inch or 1½-inch I. P.



A-40



A-39

A-39—No. 1 Deep Pattern Refrigerator Drain

With loose Bell Trap Strainer. 7½-inch Diameter—2⅜ inches deep. Tapped 1¼-inch or 1½-inch I. P.

B-41—New England Pattern Refrigerator Drain



B-41

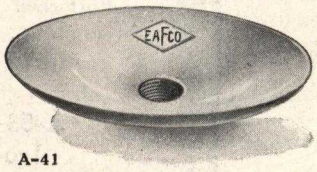
7¾-inch diameter, 2⅞ inches deep. With deep hinged bell strainer. Tapped 1¼ or 1½ inches I. P. Outlet.

Designed especially for New England trade, but an excellent Ice Box Pan or Refrigerator Drain for use anywhere.

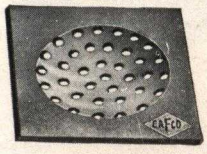
Can also be furnished with Loose Strainer, not Hinged. When requiring Loose Strainer, specify Fig. C-41.

A-41—No. 4—Plain Refrigerator Drain

10-inch Diameter—2 inches deep. Tapped 1¼-inch or 1½-inch I. P.



A-41



A-42

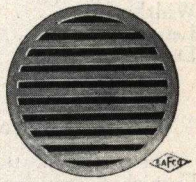
A-42—Square Cesspool Plates

Perforated—6x6, 7x7, 8x8, 9x9, 10x10 and 12x12

A-43—Round Bar Strainer or Soil Pipe Grate

Fits in Bell of Soil Pipe

Size	List	Size	List	Size	List
2-inch Diameter	$0.10	5-inch Diameter	$0.25	8-inch Diameter	$0.60
3-inch Diameter	.15	6-inch Diameter	.35	9-inch Diameter	.80
4-inch Diameter	.20	7-inch Diameter	.50		



A-43

Spring Lid Water Box

A-44—With Removable Lid

Broken Lid can be replaced without disturbing Box or cement. **Brass Screw in front holds lid down tight.**

Sizes	List	Sizes	List
6x 6 inches, medium	$0.40	8x 8 inches, extra heavy	$1.00
8x 8 inches, medium	.70	10x10 inches, extra heavy	1.75
10x10 inches, medium	1.25	12x12 inches, extra heavy, H/L Water Boxes.	
6x 6 inches, extra heavy	.60		



A-44



B-44

B-44—Eafco New Style Philadelphia Regulation Water Box

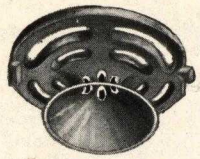
A-45—Cast Iron Vent Box



A-45

Old style with perforated top.
Made in sizes 6x6 and 8x8.
Medium and extra heavy.

B-45—Eafco New Style Philadelphia Regulation Vent Box

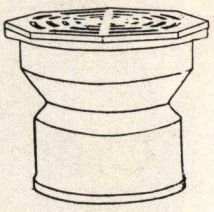




B-45

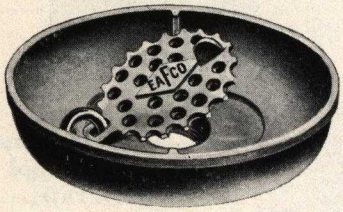
C-45—"Rudolph" Philadelphia Regulation Vent Box

C-45—"Rudolph" Philadelphia Regulation Vent Box. **Caulks from top** by removing Strainer.



C-45

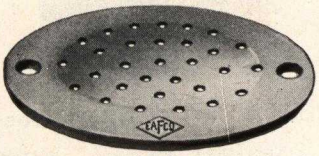
A-46 "Eafco Jr." Refrigerator Drain



A-46

7⅛-inch diameter, 2½ inches deep with Hinged Perforated Strainer. Strainer cannot be removed or lost. Tapped 1-inch, 1¼-inch or 1½-inch Iron Pipe.

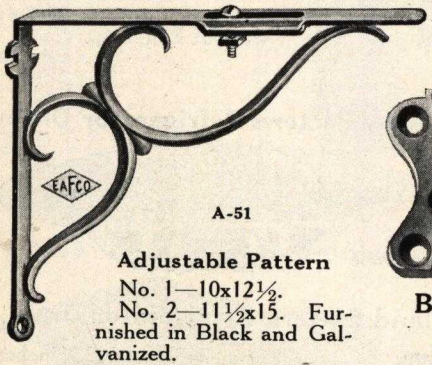
A-47—Open Iron Sink Strainer



A-47

Sizes	List per Doz. Plain	Galv.
4½-inch diameter.	$1.50	$2.60
4⅝-inch diameter.	1.50	2.60
4⅞-inch diameter.	1.50	2.60

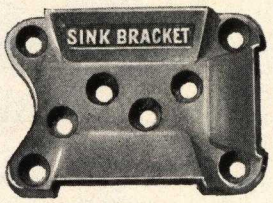
A-51—Cast Iron Sink Brackets



A-51

Adjustable Pattern

No. 1—10x12½.
No. 2—11½x15. Furnished in Black and Galvanized.



B-51—Cast Iron Concealed Sink Bracket

A-48—Sink Couplings



A-48

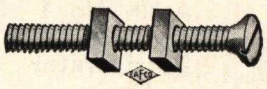
For Lead Pipe.

A-49—Sink Couplings



A-49

Threaded for 1, 1¼, 1½ or 2-inch Iron Pipe.

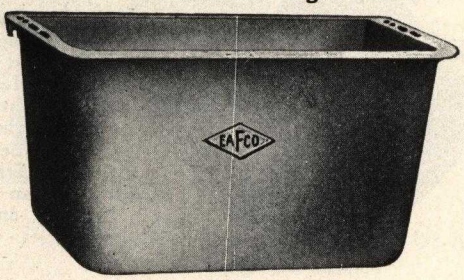


A-50

A-50—Iron Sink Bolt and Nut

Per Doz. . . $0.30 Per 100. . . . $2.30

A-57—Cast Iron High Tank



A-57

Width at Top	9 inches	Capacity	6 gallons
Length at Top	17¼ inches	List Price	$2.75
Depth	9¼ inches		

Can furnish with lever, bracket and valve.

A-52—Iron Sink Legs New Style

To fit Kohler Sinks.
Furnished plain, painted white or bronzed.



A-52
New Style

A-53—Half Round Iron Sink Legs

For enameled iron sinks. Furnished plain, painted white or bronzed.



A-53
Old Style

A-54—Cast Iron "P" Trap

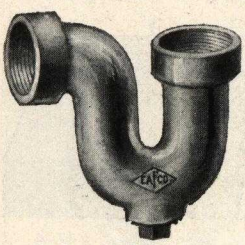
For Sink or Bath, close pattern. 1½-inch body. Furnished plain or galvanized, with 1¼, 1⅜ or 1½-inch rough brass slip joint inlet.



A-54

B-54—Cast Iron "Half S" Trap

(New York Pattern)



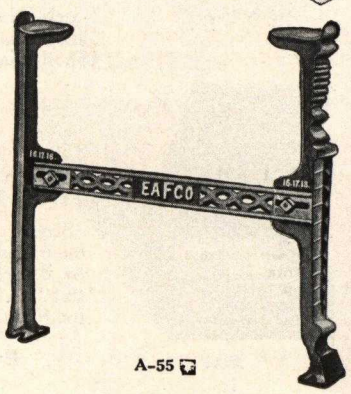
B-54

Measurements
C. of Inlet to E. of Outlet, 5¾ inches.
C. of Outlet to face of C.O., 5½ inches.
E. of Inlet to face of C. O., 5½ inches.

	Painted	Galvanized
1½-inch with Iron C. O. Plug	$0.95	$1.40
2-inch with Iron C. O. Plug	2.25	3.00

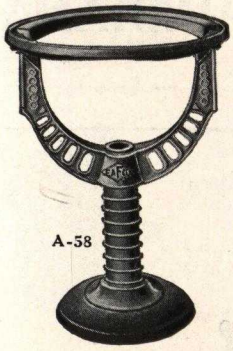
A-55 Iron Wash Tray Legs

Adjustable pattern for Soapstone trays. Suitable for trays 16, 17 and 18 inches wide. Furnished 16 and 18 inches high.



A-55

A-58—"Eafco" Pattern Boiler Stand



A-58

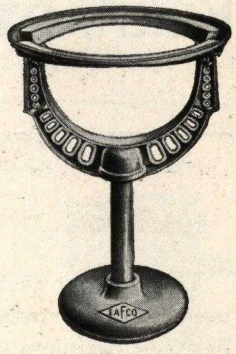
Designed specially for the New York and New England trade.

Size Inches	Height Inches	Plain	Galvanized
11½	20	$1.25	$2.50
12	20	1.25	2.50
12½	20	1.25	2.50
13	20	1.30	2.60
14	20	1.40	2.70
15	20	1.50	3.00
16	20	1.75	3.25
17	20	2.00	4.00
18	20	2.50	4.75
20	20	3.00	5.50
22	20	3.50	6.50
24	20	4.00	7.50

Any of the above sizes, 30 inches high, add 40 cents each to list plain and 80 cents galvanized.

B-58—"Eafco" Ring-Nipple Boiler Stand

The Lockwood Pattern is a reliable boiler stand and is erected with a wrought nipple stem. Regularly furnished less nipple enabling the use of a regular 1-inch wrought pipe nipple from stock of any desired length, to set the boiler at the required height.



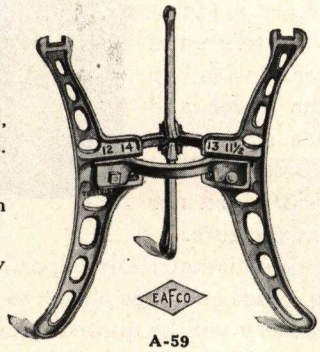
B-58

A-59—"Eafco" Tripod Adjustable Boiler Stand

Can be adjusted to suit 11½, 12, 13 and 14-inch range boilers. Legs interchangeable.

Made of finest grade iron, smooth and clean.

Can be erected without any bolts if desired.



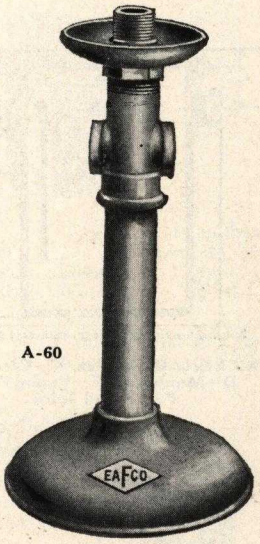
A-59

A-60—"Eafco" Universal Range Boiler Stand

The Genuine Hawks Pattern

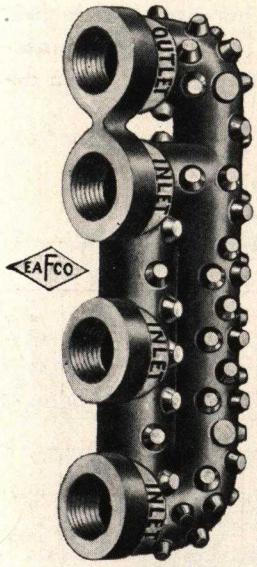
Will fit any size or make tank. All stands furnished with malleable tees. Use regular 1¼-inch wrought pipe to adjust to any height.

Tees Furnished Tapped 1x¾, ¾x¾, or ¾x½ inches.



A-60

A-61—"Eafco" Water Back



A-61

Heavy cast iron No. 30 Water Back especially designed to eliminate corrosion and the collection of sediment, or, "Why water backs burn out." High raised buttons maintain a free circulation of air and a live hot fire with an ample supply of hot water. Tapped for ¾-inch or 1-inch I. P. Thread. Center to center tappings, for all popular make heating boilers:—

2½ inches—6 inches—9 inches

Solid plugs can be furnished for the two tappings not used at small additional cost. SPECIFY "Eafco" Water Back for the best "direct heating" jobs.

A-62—"Eafco" Tank Heaters

These new "Eafco" Tank Heaters may be had with either flat tops, dome tops or with double plate laundry tops, and in a variety of sizes to meet your requirements.

All "Eafco" Tank Heaters can be furnished with either plain, galvanized, copperized or brass water jackets.

An exclusive feature is the special coal retaining ring cast in each fire pot, which, with the flat single shaker grates, makes it possible to burn the smallest sizes of coal without waste and assuring an unusual economy of operation. Ruggedly constructed, these heaters are also provided with dampers in the smoke pipe collars, and, of course, brick-lined firepots. Full dimensions on all "Eafco" Heaters are greater than the usual, and assure extra reserve capacity.

"Eafco" heaters present a most pleasing appearance with their smooth uniform castings and distinctive gloss black finish.


A-62

Dimensions and Ratings

Number	40	60	40-L	60-L	60-D	70-D	90-D
Diameter of Fire Pot...Inches	10	10	10	10	10	10	10
Smoke Collar...Inches	5	5	6	6	5	5	5
Depth of Fire Pot...Inches	12	13½	12	13½	10	12	13½
Height, from floor to top of heater...Inches	19½	21	22¾	24¼	21¼	23¼	24¾
Height, from floor to return outlet...Inches	15	15¼	15	15¼	13	15	15¼
Furnished with bottom and feed—add to above total height...Inches	5	5	5	5	5	5	5
Flow Tapping...Inches	1	1	1	1	1	1	1
Return Tapping...Inches	1	1	1	1	1	1	1
Commercial capacity...Gallons	60	90	60	90	80	90	120
Recommended capacity...Gallons	40	60	40	60	60	70	90
Weight...Pounds	100	105	120	125	125	130	135
Weight, with bottom and feet...Pounds	108	113	128	133	133	138	143

ELKHART IRON WORKS — ELKHART, INDIANA

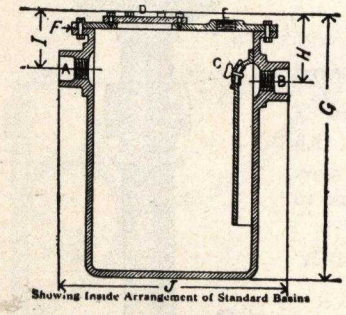
2010 South Main Street

Elkhart Catch Basins

The Elkhart cast iron blow-off, gravel and drainage catch basins are used between steam boilers and sewer, between house drains and sewer, between drainage systems in garage and sewer or any place where the sewage carries solids, vapors or gases that need to be intercepted between it and the sewer.



The Elkhart Catch Basins are made of soft gray iron. The cover is bolted on and provided with manhole, fastened with cap screws. Joints, between the cover and body, cover and manhole, are made with gaskets which are water and gas tight. The Elkhart Catch Basin is not intended nor guaranteed for water or steam pressure.



Showing Inside Arrangement of Standard Basins

A—Inlet. B—Outlet. C—Cleanout.
D—Manhole. E—Vapor Vent.
F—Packed Joint.

The inlet and outlet are regular, diametrically opposite, as shown but there can be at additional cost, a number of these openings placed as specified. Prices on special basins, larger sizes and extra heavy will be quoted upon request.

Vents on 16, 18 and 20 inch sizes are three inches, on all other sizes four inches. Regular basins are fitted with combination four-inch soil and screwed pipe connections (faced nozzle with companion flanges or bolt—on threaded flanges, when desired). All outlets are sealed against gas.

Catch Basin List

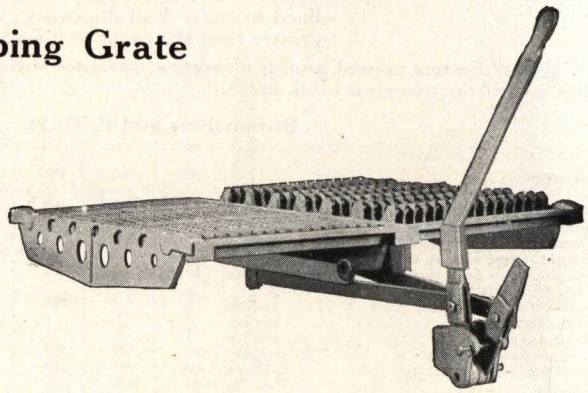
Diameter, Inches	16			20				30						42				
Depth, Inches	16	20	24	20	24	30	36	30	36	42	48	54	60	42	48	54	60	72
G—Inches	18¼	22¼	26¼	22¼	26¼	32¼	38¼	32½	38½	44½	50½	56½	62½	44½	50½	56½	62½	74¼
H—Inches	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½
I—Inches	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
J—Inches	23	23	23	27	27	27	27	37	37	37	37	37	37	44	44	44	44	44
Weight, Pounds	222	245	270	310	345	380	440	770	855	940	1026	1112	1196	1600	1720	1840	1960	2160
List Price	35.50	39.00	43.00	49.60	55.00	60.80	70.40	123.00	136.80	150.40	164.20	177.90	191.35	224.00	240.80	257.60	274.00	302.40

Diameter, Inches	18				24				36						48				
Depth, Inches	18	24	30	36	30	36	42	48	36	42	48	54	60	72	48	54	60	66	72
G—Inches	20¼	26¼	32¼	38¼	32¼	38¼	44¼	50½	38½	44½	50½	56½	62½	74½	50½	56½	62½	69	75
H—Inches	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½
I—Inches	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
J—Inches	25	25	25	25	31	31	31	31	43	43	43	43	43	43	57	57	57	57	57
Weight, Pounds	270	310	350	400	540	605	665	725	1110	1210	1310	1410	1510	1800	2325	2500	2670	2825	3000
List Price	43.00	49.60	56.00	64.00	86.40	96.80	106.40	116.00	177.60	194.00	210.00	226.00	242.00	288.00	325.50	350.00	373.80	395.50	420.00

Elkhart Shaking and Dumping Grate

The Elkhart Shaking and Dumping Grate will not fill up with clinkers for the clearance is ample. A new bar can be put in at any time without disturbing the others or the side bars. Regular, ½-inch iron, ½-inch air space. May be had with ½-inch iron, ⅜-inch air space for fine fuels. The bars cannot jump out. In ordering give inside dimensions of fire box—inside of rivets. Will shake from center or either side or both sides. Average weight 55 pounds per square foot.

List price $8.00 per square foot.



R. ESTABROOK'S SONS CO. SOUTH BOSTON, MASS.

Established 1875

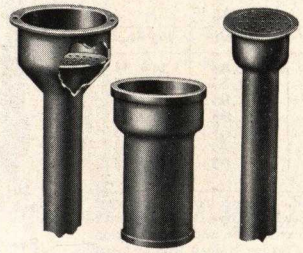
204 West First Street



Estabrook Grease Trap for Outside Use

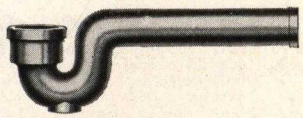
Inside Diameter . 30 inches
Inside Depth . . . 30 inches
Inlet in Brickwork
Connection for Soil Pipe
Weight Complete, 4-inch Outlet . . . . . 720 lbs.
4-inch Outlet . List $75.00

Laboratory Cesspools Light to Heavy Increaser



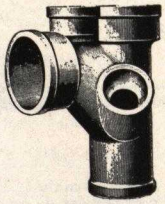
7¾-inch over all face of flange carrying a 5½-inch strainer, 18-inch over all with 2-inch spigot, 13 inches long for caulking . . . . . List $2.00
4⅝-inch over all face of flange carrying a 3¼-inch strainer, 18 inches over all with 2-inch spigot, 15 inches long for caulking . . . . . List 1.70
Light to Heavy Increaser
Spigot for 4-inch standard pipe—Hub for 4-inch heavy soil pipe, 10 inches over all . . . . . List 1.35

Cronin Trap



2-inch ½S Cronin Trap. Cleanout tapped for 1½-inch screw, 18 inches from center of inlet to end of spigot.
List Price $2.75

Estabrook 4 x 4 Closet Y



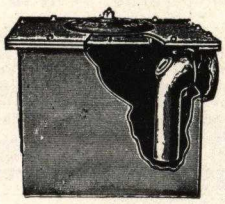
2-inch Hub Inlet, 2-inch Top Vent.
4-inch x 4-inch Single Inlet—No Vent . $3.25
4-inch x 4-inch Single Inlet—Vented . . 3.75
4-inch x 4-inch Double Inlets—No Vent 4.75
4-inch x 4-inch Double Inlets—Vented 5.25
This fitting also made with a 3-inch run and 4-inch branch. No vent.
3-inch x 4-inch No Inlet—No Vent. . $2.50
3-inch x 4-inch Right or Left Inlet—No Vent 3.25
3-inch x 4-inch Right and Left Inlet—No Vent 4.75

Estabrook Catch-basin



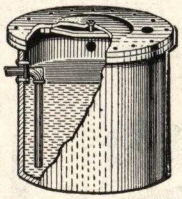
Inside Diameter . . . . . 30 inches
Inside Depth . . . . . 30 inches
Outlet Connection for Soil Pipe
Weight Complete 4 inch Outlet . . . . 860 lbs.
4-inch Outlet . . . . . List $77.50

The Square Boston Grease Trap



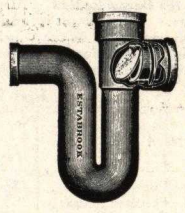
Top . . . . . 12 inches x 15 inches
Depth . . . . . 10 inches
Outlet . . . . . 2-inch Screw Pipe
Inlet . . . . . 2-inch Screw Pipe
Weight . . . . . 70 lbs.
List Price $20.00

The Boston Blow-off Tank



Inlet tapped for 2-inch I. S. Pipe.
Outlet tapped for 2-inch I. S. Pipe.
Top Vent tapped for 3-inch I. S. Pipe.
Diameter . . . . . 24 inches
24 inches high; weight 470 lbs. . . List $68.75

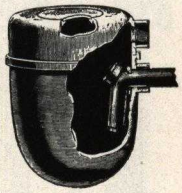
Deep Seal Running Trap



Weight 35 lbs.
Made in 3-inch Extra Heavy only
Trap, as shown . . . . . List $10.00
Trap, less valve . . . . . List 7.50
Brass Clapper Valve . . . . . List 3.15

Estabrook Grease Trap with Extension Top for Inside Use

Inside Diameter . . 30-in.
Inside Depth . . . . . 30-in.
Inlet in Extension Top
Connection for Soil Pipe
Weight Complete, 4-inch Outlet . . . . . 670 lbs.
4-inch Inlet and Outlet
List $75.00



Deep Seal Cesspool Outlet Connection for Soil Pipe



Diameter . . . . . 10 inches
For Brass Strainer . . . . . Add List $3.75

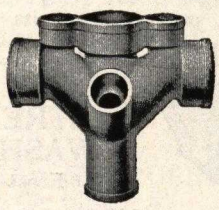
Depth . . . . 18 inches	Depth . . . . 12 inches
Weight . . . . . 115 lbs.	Weight . . . . . 95 lbs.
List	List
3-inch Outlet $19.00	3-inch Outlet $15.00
4-inch Outlet 21.00	4-inch Outlet 17.00

The Only Original Sisson Insertable Joint Pattern

Size Inches	Standard List	Extra Heavy List
2	$1.40	$ 1.50
3	1.70	1.90
4	1.80	2.00
5	2.70	3.00
6	3.20	3.50
8		10.00



Estabrook Double TY



4-inch x 4-inch Double TY—No Inlet—No Vent $5.40
4-inch x 4-inch Double TY—No Inlet—Vented 6.50
4-inch x 4-inch Double TY—One Inlet—No Vent 5.85
4-inch x 4-inch Double TY—One Inlet—Vented 7.00
4-inch x 4-inch Double TY—Two Inlets, one on each side or two on same side. No Vent 6.50
4-inch x 4-inch Double TY—Two Inlets, one on each side or two on same side—Vented 7.30

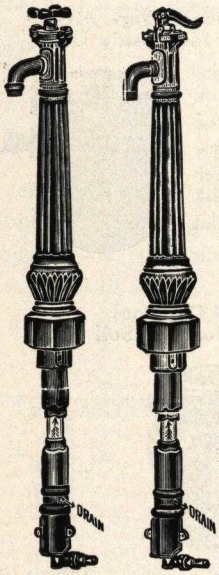
Prices subject to change without notice. This cancels all previous sheets. Discount sheet will be mailed upon request.

JOHN C. KUPFERLE FOUNDRY CO. ST. LOUIS, MO.

First and Wright Streets

Established 1857

ECLIPSE TRADE MARK REGISTERED "Since 1857"



No. 1 Compression

No. 7 Self Closing

TOTAL ECLIPSE HYDRANTS AND STREET WASHERS

Original Patents

Especially adapted for Garages, Filling Stations, Farms or General Yard Use

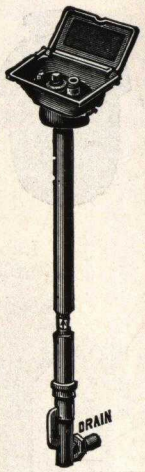
Non-freezing, positive automatic drain. Closes against the pressure without reaction. Valve and working parts of brass. Removal of nozzle and top cap permits withdrawal of interior parts for replacement with ease and without disturbing connection to supply pipe. Sand cup (valve protector) furnished on each hydrant.

Sizes and List Prices

To Set in Ground	No. 1			No. 7		No. 36		
	¾-inch	1-inch	1¼-inch	¾-inch	1-inch	¾-inch	1-inch	1¼-inch
1½ feet	$ 9.80	$13.00	$20.00	$10.80	$14.00	$ 6.60	$ 9.85	$18.35
2 feet	10.10	13.50	20.50	11.10	14.50	6.85	10.25	18.75
3 feet	10.60	14.30	21.30	11.60	15.30	7.35	11.05	19.55
4 feet	11.00	15.10	22.10	12.00	16.10	7.75	11.85	20.35
5 feet	11.50	15.90	22.90	12.50	16.90	8.25	12.65	21.15
6 feet	12.10	16.70	23.70	13.10	17.70	8.85	13.45	21.95
8 feet	13.50	18.30	25.30	14.50	19.30	10.25	15.05	23.55

1½-foot list applies on any shorter length. **Specify if full ¾, 1 or 1¼-inch inlet connection is desired.** ¾-inch hydrant or street washer has a ¾-inch Hose Nozzle and Combination Inlet fitted for ¾-inch or ½-inch Pipe. (¾-inch Thread on Valve Body Inlet with removable Brass Coupling for ½-inch Iron or Lead Pipe). 1-inch hydrant or street washer has a 1-inch Hose Nozzle and Combination Inlet fitted for 1-inch or ¾-inch Pipe. (1-inch Thread on Valve Body Inlet with removable Brass Coupling for ¾-inch Iron or Lead Pipe). 1¼-inch hydrant or street washer has a 1¼-inch Hose Nozzle and Combination Inlet fitted for 1¼-inch or 1-inch Pipe. (1¼-inch Thread on Valve Body Inlet with removable Brass Coupling for 1-inch Iron or Lead Pipe).

Approximate weights furnished on request.



No. 36 Street Washer

See Our Catalog For Complete Line

Replacement Parts

Number	¾-inch	1-inch	1¼-inch	Number	¾-inch	1-inch	1¼-inch
No. 115	$0.20	$0.30	$0.50	No. 327	Net	per	Doz.
No. 124	.15	.25	.25	No. 328 (Comp.)	Net	per	Doz.
No. 130	.70	.80	.80	No. 330	$0.50	$0.70	$1.00
No. 134	.20	.20	.20	No. 334	1.50	.....	.....
No. 137 (Hydrant)	.35	.35	.35	No. 335	.20	.....	.....
No. 141 (Str. Wash.)	.35	.35	.35	No. 338	.10	.....	.....
No. 159	.08	.08	.08	No. 340	.50	.....	.....
No. 164	.30	.40	.50	No. 342	.30	.....	.....
No. 182 Half	.60	.75	1.00	No. 400	.50	.60	.....
No. 300 Comp	1.25	1.75	.....	No. 404	.50	.60	.....
No. 305 Comp	.50	.75	.....	No. 408	.50	.60	.....
No. 315	.60	.70	.....	No. 415	.20	.30	.....
No. 318	.45	.60	.....	No. 418 (Self C.)	Net	per	Doz.
No. 320	.40	.50	.....	No. 430 (Self C.)	1.25	1.75	.....
No. 325	Net	per	Doz.	No. 434 (Self C.)	.55	.80	.....

For parts not shown, send for complete part list.


No. 115


No. 137


No. 141


No. 124


No. 159


No. 130


No. 164


No. 305


No. 315


No. 318


No. 320


No. 325


No. 327


No. 328


No. 334

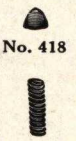

No. 134


No. 300


No. 182


No. 434


No. 430


No. 418


No. 415


No. 400


No. 404


No. 408


No. 342


No. 338


No. 340


No. 335


No. 330

ECLIPSE PARK (CALIFORNIA TYPE) STREET WASHER

Not Frost-Proof



No. 42 With Key and Pipe

For sprinkling or irrigating purposes where water is turned off in freezing weather. Recommended for golf greens. Sets flush with ground. Compression brass valve. Box and cover of iron. All working parts of brass. Can be operated only with key furnished.

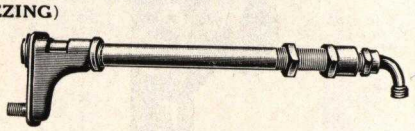
(Also furnished with brass box and cover with cover left rough or polished. Prices on request).

Sizes and List Prices

	With Pipe	Without Pipe
¾-inch Pipe and Outlet....Each	$ 3.50	$3.40
1-inch Pipe and Outlet.....Each	4.00	3.90
1¼-inch Pipe and Outlet...Each	5.00	4.90
1½-inch Pipe and Outlet...Each	7.50	7.40
2-inch Pipe and Outlet.....Each	10.00	9.90

ECLIPSE WALL HYDRANTS

(NON-FREEZING)



This hydrant, with the water shut off inside the building, has a distinct advantage over cheaper types of Sill Cocks in that it **will not freeze.** And with the feature of the Detachable Operating Key, the water cannot be turned on to waste or damage the outside wall. **This hydrant can easily be repaired if necessary by simply unscrewing the Lock Nut on the face of the hydrant and withdrawing the Operating Rod.** All parts are water tested to normal pressure. This hydrant is furnished regularly with a ½-inch Bent Inlet connection on the ¾-inch Hydrant and a ¾-inch Bent Inlet connection on the 1-inch Hydrant. If full ¾-inch or 1-inch Inlet connections are required, or if straight inlet, please specify. Hose Nozzle is threaded for ¾-inch Hose thread on the ¾-inch Hydrant and for 1-inch Hose thread on the 1-inch Hydrant. Working drawings showing all dimensions will be furnished on request.

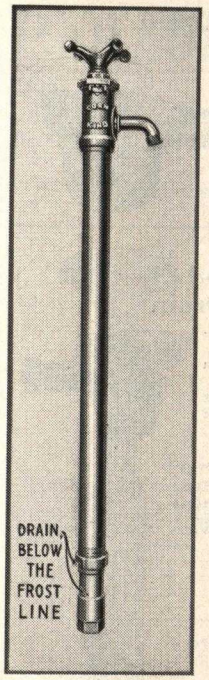
List Prices

Thickness of Wall	No. 4 Straight Nozzle		No. 5 Bent Nozzle	
	¾-Inch	1-Inch	¾-Inch	1-Inch
For 9-inch Wall—Polished Brass...	$3.50	$ 7.00	$5.00	$ 9.00
For 11-inch Wall—Polished Brass...	3.75	7.50	5.25	9.25
For 13-inch Wall—Polished Brass...	4.00	8.00	5.50	9.50
For 15-inch Wall—Polished Brass...	4.15	8.50	5.65	9.75
For 16-inch Wall—Polished Brass...	4.25	8.75	5.75	10.00
For 18-inch Wall—Polished Brass...	4.50	9.00	6.00	10.25
For 20-inch Wall—Polished Brass...	4.75	9.50	6.25	10.50
For 22-inch Wall—Polished Brass...	5.00	9.75	6.50	10.75
For 24-inch Wall—Polished Brass...	5.25	10.00	6.75	11.00
For 26-inch Wall—Polished Brass...	5.50	10.25	7.00	11.25
For 28-inch Wall—Polished Brass...	5.75	10.50	7.25	11.50
For 30-inch Wall—Polished Brass...	6.00	10.75	7.50	11.75

For **Nickel Plated Face** on No. 4 Wall Hydrant add 75c to ¾-inch and $1.00 to 1-inch lists. On No. 5 Wall Hydrant add $1.00 to ¾-inch and 1-inch lists.

For **Chromium Plated Face** on No. 4 Wall Hydrant add $1.45 to ¾-inch and $1.50 to 1-inch lists. On No. 5 Wall Hydrant add $1.75 to ¾-inch and $2.00 to 1-inch lists.

Any intermediate length takes the next longer list. **ALSO MADE TO MEET U. S. GOVERNMENT SPECIFICATIONS AT SLIGHTLY HIGHER PRICE.**



CORN-KING HYDRANTS

(Patent Applied For)

Cannot Freeze

No awkward, bulky top and handle. Neat appearance. Fully guaranteed. Inexpensive. Will deliver full supply of water under low pressure.

Two Styles

Compression — Where the ordinary screw type for opening or closing is desired.

Self-Closing—One pull and the hydrant is fully opened. No waiting for water. Let go and the hydrant closes immediately. Impossible to leave the water running. A small catch is provided in case a continuous flow is desired.

Sizes and List Prices

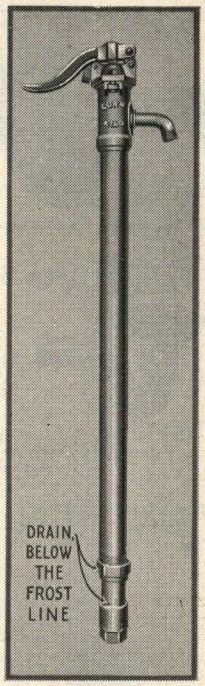
Order by figure number and specify depth to set in ground measured from ground line to supply pipe. Hydrant stands two feet above the ground line. 1½ foot list applies on any shorter length of bury.

Compression

Black Pipe				Galvanized Pipe		
¾" I. P. Inlet ¾" Hose Nozzle	1" I. P. Inlet 1" Hose Nozzle	1" I. P. Inlet ¾" Hose Nozzle	To Set in Ground	¾" I. P. Inlet ¾" Hose Nozzle	1" I. P. Inlet 1" Hose Nozzle	1" I. P. Inlet ¾" Hose Nozzle
No. 1	No. 2	No. 3		No. 4	No. 5	No. 6
$ 8.60	$ 8.60	$ 8.60	1½ Feet	$10.00	$10.00	$10.00
8.80	8.80	8.80	2 Feet	10.20	10.20	10.20
9.20	9.20	9.20	3 Feet	10.60	10.60	10.60
9.60	9.60	9.60	4 Feet	11.00	11.00	11.00
10.00	10.00	10.00	5 Feet	11.40	11.40	11.40
10.40	10.40	10.40	6 Feet	11.80	11.80	11.80

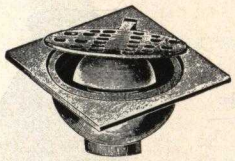
Self-Closing

Black Pipe				Galvanized Pipe		
¾" I. P. Inlet ¾" Hose Nozzle	1" I. P. Inlet 1" Hose Nozzle	1" I. P. Inlet ¾" Hose Nozzle	To Set in Ground	¾" I. P. Inlet ¾" Hose Nozzle	1" I. P. Inlet 1" Hose Nozzle	1" I. P. Inlet ¾" Hose Nozzle
No. 7	No. 8	No. 9		No. 10	No. 11	No. 12
$ 8.60	$ 8.60	$ 8.60	1½ Feet	$10.00	$10.00	$10.00
8.80	8.80	8.80	2 Feet	10.20	10.20	10.20
9.20	9.20	9.20	3 Feet	10.60	10.60	10.60
9.60	9.60	9.60	4 Feet	11.00	11.00	11.00
10.00	10.00	10.00	5 Feet	11.40	11.40	11.40
10.40	10.40	10.40	6 Feet	11.80	11.80	11.80



ECLIPSE CESSPOOLS AND SLOP HOPPERS

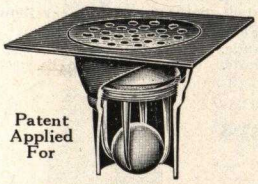
Regular Outlet to Calk—Threaded Outlet to Order



Bell Trap—Hinged Strainer

No.	Size Inches	Outlet Inches	Weight Pounds
5	6x6	2	4¼
6	9x9	3	7⅞
7	12x12	3	12¼
8	12x12	4	16¾

Bell Traps—Straight Outlet with Hinged Strainer, or Loose Strainer. Can be furnished with: Polished Brass Top, Iron Body and Bell. Nickel Plated or Chromium Plated Brass Top, Iron Body and Bell. All Brass, Top Polished. Can also be furnished less bell and trap.



Patent Applied For

Eclipse Backwater Cesspool with Bell Trap

With new self-contained backwater cage. Long shank. Easy calking. Tested before shipping.

Loose Strainer			Hinged Strainer		
No.	Size Inches	Outlet Inches	No.	Size Inches	Outlet Inches
70A	9x9	4	70	9x9	4
71A	12x12	4	71	12x12	4

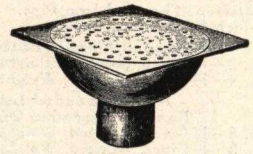
Can be furnished with brass tops.

Eclipse Backwater Valve

Cast Iron—Painted Black—Bar Grate

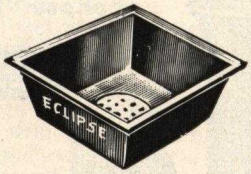


Backwater Cage (Pat. App. For) is Self Contained and may be easily Removed. No Rubber gaskets. Cage is made of bronze, ground seat for the weighted copper float. Action is automatic. No. 1—To calk into hub of 4 inch soil of pipe. Weight 4 lbs.



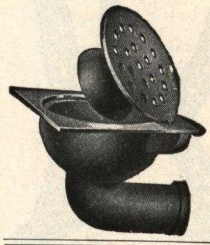
Bell Trap—Loose Strainer

No.	Size Inches	Outlet Inches	Weight Pounds
Regular			
5A	6x6	2	4
10	9x9	3	7¼
11A	12x12	3	12½
11B	12x12	4	15¾
Special Medium			
11	12x12	4	16½
Special Extra Heavy			
13	12x12	4	33½



Hydrant Without Bell Trap

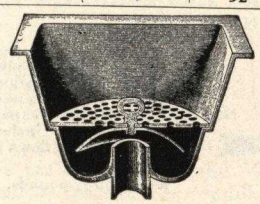
No.	Size Inches	Outlet Inches	Weight Pounds
For 4-Inch Sewer Pipe Depth, 6 Inches			
25	12x12	5⅜	14
26	14x14	5⅜	16
27	16x16	5⅜	19
28	18x18	5⅜	26
For 4-Inch Soil Pipe Depth, 6 Inches			
34	12x12	3½	16
35	14x14	3½	20
36	16x16	3½	23
37	18x18	3½	28



Bell Trap—Side Outlet

Loose or Hinged Strainer as specified.

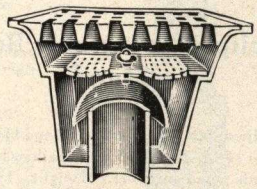
Size Inches	Outlet Inches	Weight Pounds
6x6	2	6½
9x9	3	13¾
12x12	4	32



Harris Slop Hopper With Bell Trap

Outlet, 2⅝ Inches

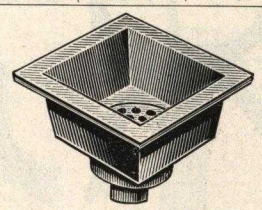
No.	Size Inches	Depth Inches	Weight Pounds
15A	12x12	8	19
15B	14x14	9	28
15C	16x16	10	36



Garage Drain

Depth 10 inches. Outlet for 4-inch Pipe

No.	Size Inches	Weight Pounds
18	12x12	40
19	16x16	61



Hydrant With Bell Trap

For 2-inch Soil Pipe. Depth, 6 inches.

No.	Size Inches	Outlet Inches	Weight Pounds
38	12x12	1⅞	14
39	14x14	1⅞	20½
40	16x16	1⅞	30
41	18x18	1⅞	40

ECLIPSE TRAP SCREW FERRULES

Iron Body Cleanout with Cast Brass Cover

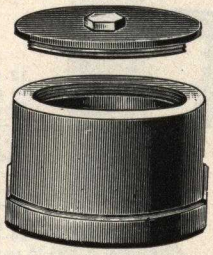
Flanged Cover

No.	Size Inches	Opening Inches	Length Inches	Weight Pounds
2	2	1¾	3	1⅜
3	3	2¾	3	2
4	4	3½	3	2⅝
5	5	4½	3⅜	4¼
6	6	5½	3⅜	5¾
8	8	7 1/16	3⅜	9¾

Plug Cover

No.	Size Inches	Opening Inches	Length Inches	Weight Pounds
12	2	1¾	3	1⅛
13	3	2¾	3	1⅜
14	4	3½	3	2⅜
15	5	4½	3⅜	4
16	6	5½	3⅜	5¼
18	8	7 1/16	3⅜	9¼

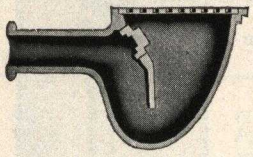
To Fit Hub of Standard Pipe



Bodies and Covers tapped ten threads to the inch. Cast Brass Covers furnished with full sized nut for solid gripping with wrench. Covers can be furnished with countersunk nut at additional cost. Small Opening.

See Following Page

Eclipse Floor Drain

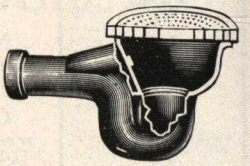


Cast Iron Body and Strainer.
Two-Inch Brass Cleanout Plug.
Can be threaded I. P. if desired.

To Calk Pipe Inches	Depth Inches	Water Seal Inches	Weight Pounds
2	7¼	2½	15
3	10¾	4	25
4	12¾	3¾	56

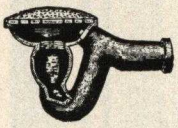
Eclipse Open Trap Floor Drain

Cast Iron Body and Strainer.
Strainer Fastened with Screw.
One and one-half-inch Brass Cleanout Plug.
Regular Outlet to Calk.
Can be threaded I. P. if desired.



To Calk Pipe Inches	Depth Inches	Water Seal Inches	Weight Pounds
2	9	2½	17

Eclipse Deep Seal Floor Drain

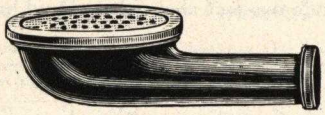


Cast Iron Body and Strainer.
Strainer Fastened with Screw.
One and one-half-inch Brass Cleanout Plug.
Regular Outlet to Calk.
Can be threaded I. P. if desired.

Furnished With or Without Backwater Attachment

To Calk Pipe Inches	Depth Inches	Water Seal Inches	Weight Pounds
2	10	3	18
2	11	4	19
3	13	4	38
4	15	4	50

Eclipse Areaway Drain



Cast Iron Body and Strainer.
Regular Outlet to Calk.
Can be threaded I. P. if desired.

To Calk Pipe Inches	Depth Inches	Water Seal Inches	Weight Pounds
2	3½	7¾	10⅝
3	4⅞	10¾	20⅝
4	6⅞	12¾	33⅞

Eclipse Exposed Cleanout Floor Drain

Cast Iron Body and Strainer.
Strainer Fastened with Screw.
Brass covered Cleanout with Countersunk Nut, at floor level.
Regular Outlet to Calk.
Can be threaded I. P. if desired.



Furnished With or Without Backwater Attachment

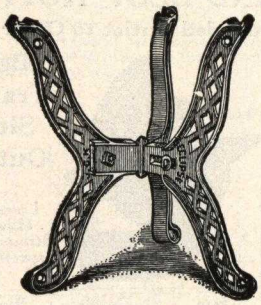
To Calk Pipe Inches	Depth Inches	Water Seal Inches	Weight Pounds
2	8½	3	16
3	11½	4	30
4	14½	4	55

All the above Drains can be furnished with Polished Brass Top and Strainer, Nickel Plated Brass Top and Strainer, or Chromium Plated Brass Top and Strainer

Eclipse Adjustable Boiler Stand

No. 1—3 Bolts

Adjustable to any make Range Hot Water Boiler of 18, 24, 30, 35 or 40 gallons capacity. Affords rigid support. Height, 13 inches. Weight, 4¾ pounds.



Eclipse Bottle Traps

Cast Iron, Threaded Iron Pipe.
¾-inch Brass Cleanout Screw.

Threaded Female Both Ends
No. 2—1¼-inch, painted, Weight 3¼ pounds.
No. 4—1½-inch, painted, Weight 4 pounds.

Male Threaded Inlet
Female Threaded Outlet
No. 6—1¼-inch, painted, Weight 2¾ pounds.
No. 8—1½-inch, painted, Weight 3¾ pounds.
Galvanized Extra.

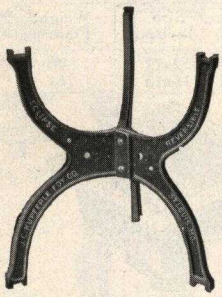


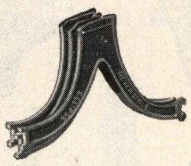


Nickel Plated Cast Brass Slip Joint Nut with Rubber Washer for 1¼ and 1½-inch Bottle Traps.

Eclipse Reversible Boiler Stand

No. 2—2 Bolts





One end to support Range Hot Water Boiler of 18, 24 and 30 gallons capacity. When reversed, boiler of 40 gallons capacity. Height, 14 inches. Shipped knocked down as illustrated.

Weight, 5⅛ pounds.

Eclipse Running Traps



Cast Iron, Threaded Iron Pipe.
¾-inch Brass Cleanout Screw.

Threaded Male Both Ends
No. 11—1¼-inch, painted, Weight 2½ pounds.
No. 13—1½-inch, painted, Weight 3¼ pounds.

Threaded Female Both Ends
No. 15—1¼-inch, painted, Weight 3 pounds.
No. 17—1½-inch, painted, Weight 3½ pounds.

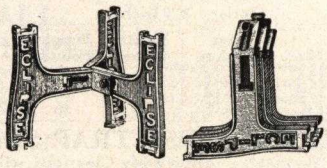
Threaded Male One End—Female the Other
No. 19—1¼-inch, painted, Weight 2¾ pounds.
No. 21—1½-inch, painted, Weight 3¼ pounds.
Galvanized Extra.

Eclipse One Bolt Boiler Stand

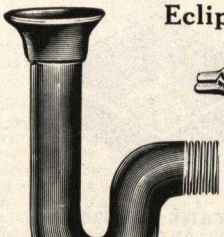
Low Type—Height, 8 inches. Weight, 3⅜ pounds.

High Type—Height, 12 inches. Weight, 4½ pounds.

One end to support Range Hot Water Boiler of 18, 24 and 30 gallons capacity. When reversed, boiler of 40 gallons capacity. Shipped knocked down as illustrated.



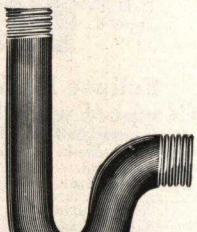
Eclipse "P" Traps







Nickel Plated Cast Brass Slip Joint Nut with Rubber Washer for 1¼- and 1½-inch "P" Traps.



Cast Iron, Threaded Iron Pipe. ¾-inch Brass Cleanout Screw.

Inlet With Sink Collar—Outlet Threaded Male
No. 41—1¼-inch, painted, Weight 3¾ pounds.
No. 43—1½-inch, painted, Weight 5 pounds.

Threaded Male Both Ends
No. 45—1¼-inch, painted, Weight 3 pounds.
No. 47—1½-inch, painted, Weight 4 pounds.

Male Inlet—Female Outlet
No. 49—1¼-inch, painted, Weight 3¼ pounds.
No. 51—1½-inch, painted, Weight 4¼ pounds.
Galvanized Extra.

Eclipse Ring Boiler Stands



12-inch Ring for 18, 24 and 30-gallon Boilers, Weight 10½ pounds.
13-inch Ring for 35-gallon Boilers, Weight 11¼ pounds.
14-inch Ring for 40-gallon Boilers, Weight 11 pounds.
16-inch Ring for 52 and 63-gallon Boilers, Weight 23½ pounds.
18-inch Ring for 66-gallon Boilers, Weight 26½ pounds.
20-inch Ring for 82-gallon Boilers, Weight 28½ pounds.
22-inch Ring for 100 and 120-gallon Boilers, Weight 35½ pounds.
24-inch Ring for 144, 168 and 192-gallon Boilers, Weight 38 pounds.
Additional Supports and Bolts for Rings of 22 and 24-inch Boiler Stands will be furnished if specified.

ECLIPSE DRUM TRAPS—SEE CATALOG NO. 26

For Our Complete Line of Cast Iron Plumbing Specialties, See Our Catalog No. 26, which will be furnished on application

PARADINE MANUFACTURING CO. ERIE, PA.

951 West 19th Street

Representatives

Boston, Mass., Geo. A. Caldwell Co., Mattapan Square.

Cleveland, Ohio, Farnan Brass Works Co., 1104 Center St., N. W.

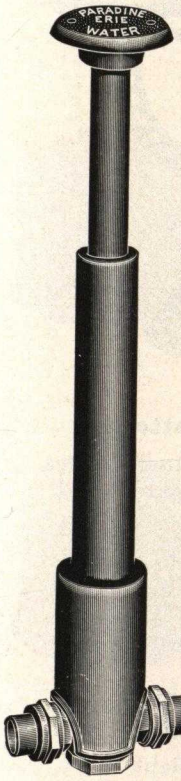
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Pittsburgh, Pa., Geo. Smith, 348 West Penn Ave.

Chicago, Ill., Jas. Smith Supply Co., 5821 Ridge Ave.

Cleveland, Ohio, Glauber Brass Mfg. Co., 7706 Platt Ave.

New York, N. Y., Wm. R. James Co., 50 Church St.



Erie Extension Service Boxes

Number 2 and 4 Box

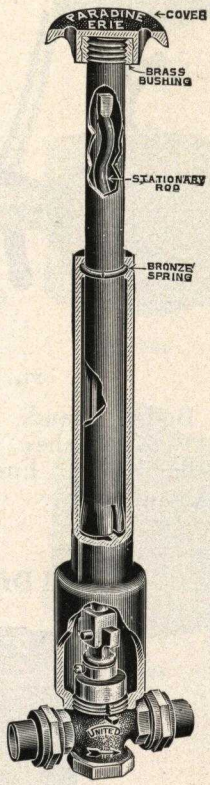
Arch Pattern with Stationary Rod, Upper Shaft 1-inch Pipe

The Arch pattern of ERIE Extension Service Box is for use with Straight Way or Round Way Solid Tee or Socket Tee Handle Curb Cocks with Regular tops, and with Inverted Key Curb Cocks with Regular tops. The smaller size, Plate No. 2, is for ½ to 1-inch cocks inclusive, and the larger size, No. 4, is for 1¼, 1½ and 2-inch cocks.

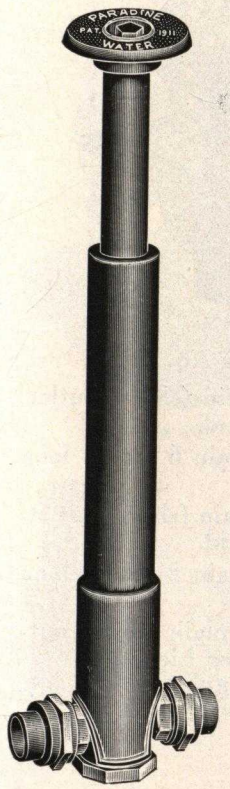
Number 12 and 14 Box

Minneapolis Pattern with Stationary Rod, Upper Shaft 1-inch Pipe

The Minneapolis pattern of the ERIE Extension Service Box is for use with Round Way Solid Tee Handle or Socket Tee Handle Curb Cocks with Minneapolis Top, and with Inverted Key Curb Cocks with Minneapolis Top. The smaller size, Plate No. 12, is for use on ½ to 1-inch Cocks inclusive, and the larger size, Plate No. 14, is for use on 1¼, 1½ and 2-inch cocks.



Size, Feet	ARCH PATTERN				MINNEAPOLIS PATTERN			
	No. 2 Box		No. 4 Box		No. 12 Box		No. 14 Box	
	For ½, ¾ and 1-inch Cock	Average Weight	For 1¼, 1½ and 2-inch Cock	Average Weight	For ½, ¾ and 1-inch Cock	Average Weight	For 1¼, 1½ and 2-inch Cock	Average Weight
1 to 1½...	$1.80	7¾	$2.20	13¾	$2.00	7¾	$2.40	19¾
1½ to 2½...	2.00	11	2.40	15½	2.20	10½	2.60	21½
2 to 3 ...	2.10	12	2.60	16	2.30	11½	2.80	22
2½ to 3½...	2.20	13¼	2.80	17½	2.40	12¾	3.00	23½
3 to 4 ...	2.30	14½	3.00	18¾	2.50	14	3.20	24¾
3½ to 4½...	2.40	15¾	3.20	20	2.60	15¼	3.40	26
4 to 5 ...	2.50	17	3.40	21¼	2.70	16½	3.60	27¼
4½ to 5½...	2.60	18	3.60	22¾	2.80	17½	3.80	28¾
5 to 6 ...	2.70	19¼	3.80	24¼	2.90	18¾	4.00	30¼
5½ to 6½...	2.80	20½	4.00	25¾	3.00	20	4.20	31¾
6 to 7 ...	2.90	21¾	4.20	27¼	3.10	21¼	4.40	33¼
6½ to 7½...	3.00	23	4.40	28¾	3.20	22½	4.60	34¾



Arch Pattern

Without Stationary Rods

No. 31 Box—Upper Shaft 1¼-in. Pipe.
No. 38 Box—Upper Shaft 1½-in. Pipe.
No. 44 Box—Upper Shaft 2-in. Pipe.

The Arch Pattern "Erie" Boxes are for use with Straight Way or Round Way solid Tee Handles or Socket Tee Handle Curb Cocks with regular tops, or Inverted Key Cocks with regular tops.

The No. 31 and 38 Arch Pattern Box is for ½-inch to 1-inch Cocks inclusive.

The No. 44 Arch Pattern Box is for Cocks up to 2 inches inclusive.

The 1¼, 1½ and 2-inch Service Boxes have a cap with a brass bushing into which a plug screws. The plug is removed to shut off the cock. These Boxes have no stationary rods.

Minneapolis Pattern

Without Stationary Rods

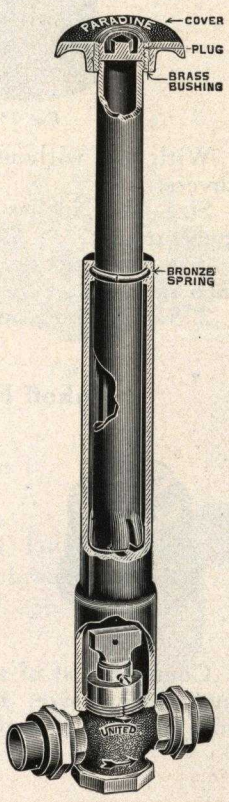
No. 34 Box—Upper Shaft 1¼-in. Pipe.
No. 41 Box—Upper Shaft 1½-in. Pipe.
No. 47 Box—Upper Shaft 2-in. Pipe.

The Minneapolis Pattern "Erie" Boxes are for use with Round Way solid Tee Handle, Socket Tee Handle, or Inverted Key Curb Cocks with Minneapolis Tops.

The No. 34 Minneapolis Boxes are tapped 2-inch I. P., or bushed to 1¼ or 1½ inches as specified.

The No. 41 Minneapolis Boxes are tapped 2-inch I. P. regularly, they can also be tapped 2½ inches or bushed 1¼ or 1½ inches as specified.

The No. 47 Minneapolis Boxes are tapped 3, 3½ or 4-inch I. P., or bushed to 1½, 2 or 2½ inches as specified.



Size, Feet	ARCH PATTERN						MINNEAPOLIS PATTERN					
	No. 31 Box		No. 38 Box		No. 44 Box		No. 34 Box		No. 41 Box		No. 47 Box	
	For ½, ¾ and 1-inch Cock	Average Wt.	For 1, 1¼ and 1½-in. Cock	Average Wt.	For 1½ and 2-inch Cock	Average Wt.	For ½, ¾ and 1-inch Cock	Average Wt.	For 1, 1¼ and 1½-in. Cock	Average Wt.	For 1½ and 2-inch Cock	Average Wt.
1½–2½	$2.50	12	$2.84	16¼	$4.10	24½	$2.70	14	$3.04	16¾	$4.30	26½
2 –3	2.60	13½	3.00	17½	4.30	26¼	2.80	15¼	3.20	18	4.50	28¼
2½–3½	2.70	14¾	3.16	19	4.50	28	2.90	16½	3.36	19½	4.70	30
3 –4	2.80	16	3.32	20¼	4.70	30	3.00	17¾	3.52	20¾	4.90	31¾
3½–4½	2.90	17	3.48	21¾	4.90	31¾	3.10	18¾	3.68	22¼	5.10	33¾
4 –5	3.00	18¼	3.64	23	5.10	33½	3.20	20	3.84	23½	5.30	35½
4½–5½	3.10	19¼	3.80	24¼	5.30	35½	3.30	21¼	4.00	24¾	5.50	37¾
5 –6	3.20	20½	3.96	25¾	5.50	37¼	3.40	22¼	4.16	26¼	5.70	39½
5½–6½	3.30	21¾	4.12	27	5.70	39¼	3.50	23½	4.32	27½	5.90	41½
6 –7	3.40	23	4.28	28½	5.90	41	3.60	24½	4.48	29	6.10	43¼
6½–7½	3.50	24	4.44	29¾	6.10	43	3.70	25¾	4.64	30¼	6.30	45¼

MILFORD IRON FOUNDRY — MILFORD, MASS.

Incorporated 1903

Milford Plumbing Products

Milford Adjustable Boiler Stand

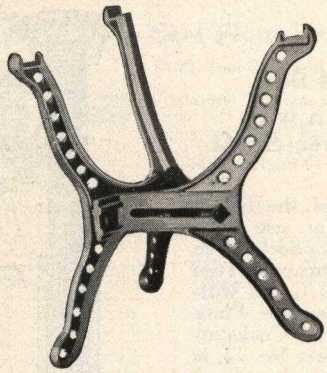


Fig. 100

Boiler Stand, adjustable from 11½ to 14 inches. Suitable for 30-40 gallon boilers. Furnished in plain or galvanized.

Milford Ring Boiler Stand

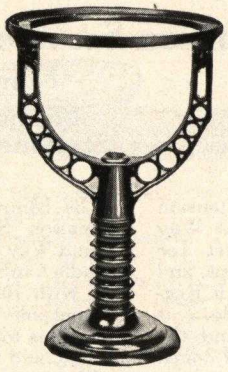


Fig. 131

New England Type

All sizes from 11½ to 24 inches. Furnished plain or galvanized.

Milford Ring Boiler Stand

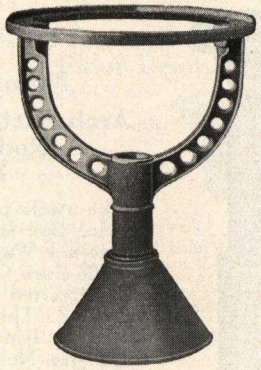


Fig. 130

Lockwood Pattern

All sizes from 11½ to 24 inches. Furnished plain or galvanized.

Milford Drum Traps



Fig. 183

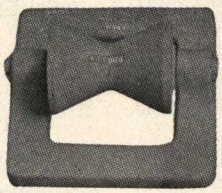
With or without Nickel-plated covers.

Size—4x5 inches—1¼ and 1½-inch tapping.

Size—4x8 inches—1¼, 1½ and 2-inch tapping.

2, 3 and 4 hole openings.

Milford Teamsters' Pipe Roll



A great economy in loading and unloading pipe.

Extremely well made and will last a long time.

Base 10½ inches square. Roll 6 inches long.

Milford Bell Traps Hinged Strainer

Medium Weight



Fig. 171

Bell Traps No. 171

6x6x2 inches plain (short) outlet, Loose or Hinged Lid.

6x6x2 inches, plain 6 inches long outlet, Loose Lid.

9x9x3 inches, plain (short) outlet, Loose or Hinged Lid.

9x9x3 inches, plain 8 inches long outlet, Loose Lid.

12x12x4 inches, plain (short) outlet, Loose or Hinged Lid.

12x12x4 inches, 8 inches long outlet, Loose Lid.

Manhoff Fittings

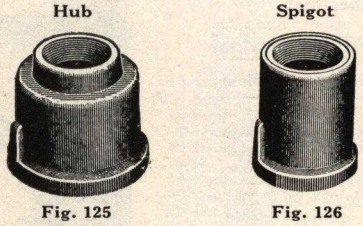
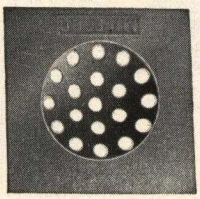


Fig. 125 Fig. 126

Complete list of sizes from 2 to 5 inches, inclusive, furnished in all size tappings of iron pipe.

Milford Cesspool Plates



Sizes:

6 x 6 inches	9 x 9 inches
7 x 7 inches	10 x 10 inches
8 x 8 inches	12 x 12 inches

Write for Latest Price List

Milford Iron Body Trap Screw Ferrules



Fig. 185

Standard Competition with Brass Taper Plug

Figure 185

Furnished in sizes 2, 3, 4, 5 and 6 inches.

Standard Competition with Brass Flange Plug

Figure 186

Furnished in sizes 2, 3 and 4 inches.

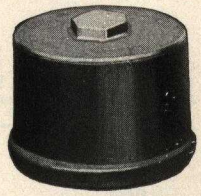


Fig. 186



Fig. 190

Standard with Brass Taper Plug

Figure 190

Takes Standard Test Plug.

Furnished in sizes 2, 3, 4, 5 and 6 inches.

Standard with Brass Flange Plug

Figure 191

Takes Standard Test Plug.

Furnished in sizes 2, 3, 4, 5 and 6 inches.



Fig. 191

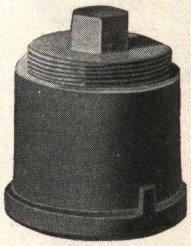


Fig. 194

Boston and Ohio Regulation with Brass Taper Plug

(For Extra Heavy Pipe)

Figure 194

¾ inch high nut, 6 threads I. P. S.

Furnished in sizes 2, 3, 4, 5, 6 and 8 inches.

New York Regulation with Brass Taper Plug

(For Extra Heavy Pipe)

Figure 193

Solid Nut, 1 inch high, 6 threads I. P. S.

Furnished in sizes 2, 3, 4, 5, 6 and 8 inches.

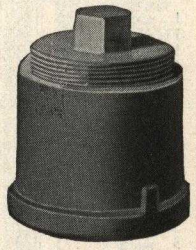


Fig. 193

No. 175—Extra Heavy with Brass Taper Plugs

(For Extra Heavy Pipe)

(Not Illustrated)

⅝ inch high nut. Furnished in sizes 2, 3 and 4 inches.



Fig. 200

Milford Standard Ice Box Drain

Figure 200

Made in 8 inch size only.

Either hinged or loose trap cover.

Furnished plain or galvanized.

Tapped 1¼ and 1½ inches.

Refrigerator Trap

Figure 202

Made in 10 inch size only.

With loose trap strainer.

Furnished plain, black or galvanized.

Tapped 1¼ and 1½ inches.



Fig. 202



Fig. 182

Dandy Cleanouts with Brass Plugs

Figure 182

Fig. 140—Standard with flange plug.

Fig. 141—Extra heavy with flange plug.

Fig. 182—Boston regulation.

Above furnished in sizes 2, 3, 4, 5 and 6 inches.

Milford 1½" Half "S" Trap

Figure 250

Milford Extra Deep Iron Bath Tub Trap casting is extra heavy with brass slip joint to receive tail piece of connected waste and overflow outlet.

1 inch cleanout plug.

Slip collars tapped 1¼, 1⅜ and 1½ inches.

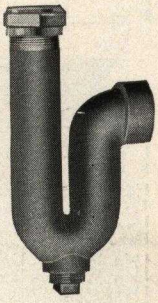


Fig. 250

Write for Latest Price List

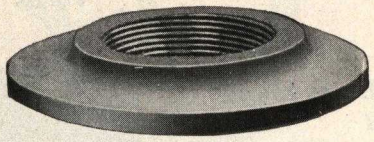
MODERN IRON WORKS — QUINCY, ILL.

520-40 South Fifth Street

Representatives:

Chicago, Ill., Chas. W. Badger, Peoples Gas Bldg.
Mansfield, Ohio, H. D. Kenney, 126 Sturges Avenue.
Minneapolis, Minn., Fred S. Wilsey, Plymouth Bldg.
Montreal, Que., Can., J. R. Devereaux & Co., 602 New Birks Bldg.
New York, N. Y., Henry Stein, 50 Cliff Street.
San Francisco., Cal., Edw. L. Culin, Tilden Sales Bldg.

Plumbing, Heating, Water and Gas Supplies



G-551

"M. I. W." Cast Iron Flanges

Common—Not Faced

Price Each, Plain—Double List if Galvanized.

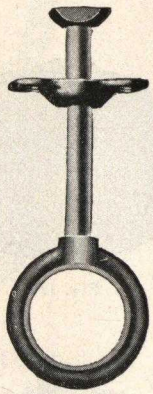
Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each
¾x 4	$0.22	4 x8½	$1.00	7 x13½	$ 2.80
1¼x4½	.25	3 x 9	1.15	8 x13½	2.80
¾x5	.30	3½x 9	1.15	6x14	3.25
1 x5	.30	4 x 9	1.15	7x14	3.25
1¼x5	.30	4½x 9	1.15	8x14	3.25
1½x5	.30	4½x 9¼	1.25	7x15	4.00
1 x6	.42	3½x10	1.50	8x15	4.00
1¼x6	.40	4 x10	1.50	9x15	4.00
1½x6	.40	4½x10	1.50	8x16	5.00
2 x6	.42	5 x10	1.50	9x16	5.00
2½x6	.42	6 x10	1.50	10x16	5.00
2 x6½	.50	4½x11	1.75	9x17	5.75
2½x6½	.50	5 x11	1.75	10x17	5.75
3 x6½	.50	6 x11	1.75	10x18	7.00
2 x7	.62	5 x12	2.20	12x18	7.00
2½x7	.62	6 x12	2.20	10x19	7.50
3 x7	.62	7 x12	2.20	12x19	7.50
3 x7½	.75	5 x12½	2.20	12x20	8.50
2 x8	.90	6 x12½	2.20	14x20	8.50
2½x8	.90	7 x12½	2.20	14x21	9.50
3 x8	.90	6 x13	2.80	15x21	9.50
3½x8	.90	7 x13	2.80	15x22¼	14.00
4 x8	.90	8 x13	2.80	16x23½	18.00
3½x8½	1.00	6 x13½	2.80		

"M. I. W." Expansion Pipe Hangers

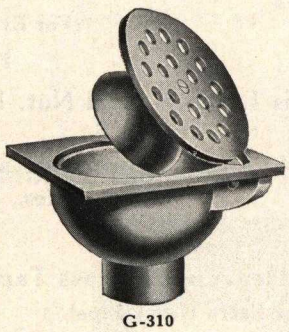
Price Each, Plain—Double List if Galvanized—Nipples not included in Price List.

Size.....Inches	½	¾	1	1¼	1½	2	2½	3
Complete.....Each	$0.17	$0.17	$0.18	$0.19	$0.25	$0.29	$0.36	$0.44
Plates.....Each	.08	.08	.08	.08	.09	.09	.10	.10
Buttons.....Each	.06	.06	.06	.06	.07	.07	.08	.08
Rings.....Each	.08	.08	.12	.15	.20	.25	.30	.40
Size of Nipple to fit Rings and Buttons.	⅜	⅜	⅜	⅜	⅜	⅜	½	½

Size.....Inches	3½	4	4½	5	6	7	8
Complete.....Each	$0.55	$0.63	$0.90	$1.12	$1.35	$1.80	$2.25
Plates.....Each	.10	.10	.10	.10	.10	.10	.10
Buttons.....Each	.08	.08	.08	.08	.08	.08	.08
Rings.....Each	.50	.60	.80	1.00	1.25	1.70	2.15
Size of Nipples to fit Rings and Buttons.....	½	½	½	½	½	½	½



G-528



G-310

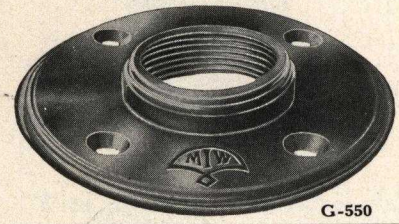
"M. I. W." Cesspool

With Bell and Hinged Strainer

Catalog No.		Standard	Extra Heavy
G-310	6x 6 with 2-in. Spigot Outlet.....	$1.00	$1.50
G-311	9x 9 with 3-in. Spigot Outlet.....	1.35	1.85
G-312	13x13 with 4-in. Spigot Outlet.....	3.00	4.25

Extra for Threading Cesspools, as Above Listed

	1½ in.	2 in.	3 in.	4 in.
Male.....	.....	$1.00	$1.25	$1.50
Female.....	$0.40	.55	.75	1.25



G-550

"M. I. W." Floor Flanges

—Not Faced

Price Each, Plain —Double List if Galvanized

Size of Pipe Inches	Diameter of Flange Sizes in Bold Face Type are Standard										
	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
2.....	.10										
2½.....		.10	.10	.15	.15						
3.....			.10	.15	.15	.16					
3½.....			.20	.15	.15	.16					
4.....			.20	.25	.22	.16	.16	.22			
4½.....							.30	.22			
5.....				.25	.30	.30	.30	.30	.35		
5½.....									.35		
6.....						.42	.40	.40	.42	.42	
7.....									.62	.62	.62
8.....											.90

"M. I. W." Refrigerator Drains

"M. I. W." Pattern, 8 Inches Diameter



G-252

Catalog Number		Black Painted	Aluminum Painted	Galvanized
G-252	Tapped 1 inch.....	$0.80	$1.10	$1.35
	Tapped 1¼ inches.....	.80	1.10	1.35
	Tapped 1½ inches.....	.85	1.15	1.40

"M. I. W." Eccentric Reducers

Price List, Plain—Double List for Galvanized

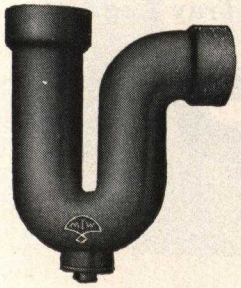
Size	List	Size	List	Size	List	Size	List	Size	List	Size	List	Size	List	Size	List
1 x ¼	$0.55	2 x1	$1.00	3 x2	$2.40	4 x3	$4.00	5x4	$6.00	7x2½	$9.00	8x4½	$11.00	10x5	$14.00
1 x ½		2 x1¼		3 x2½		4 x3½		5x4½		7x3		8x5		10x6	
1 x ¾		2 x1½		3½x1	$3.00	4½x2	$5.00	6x1¼	$8.00	7x3½		8x6		10x7	
1¼x ¾		2½x ½		3½x1¼		4½x2½		6x1½		7x4		8x7		10x8	
1¼x1		2½x ¾		3½x1½		4½x3		6x2		7x4½		9x2		10x9	
1¼x1½		2½x1	$1.50	3½x2		4½x3½		6x2½		7x5		9x3		12x3	
1¼x2		2½x1¼		3½x2½		4½x4		6x3		7x6		9x4		12x4	
1½x ½	$0.72	2½x1½		3½x3		5 x1¼		6x3½				9x5	$12.50	12x5	
1½x ¾		2½x2		4 x1		5 x1½		6x4		8x2		9x6		12x6	$18.00
1½x1		3 x ¾	$2.40	4 x1¼	$4.00	5 x2	$6.00	6x4½		8x2½		9x7		12x7	
1½x1¼		3 x1		4 x1½		5 x2½		6x5		8x3	$11.00	9x8		12x8	
2 x ½	$1.00	3 x1¼		4 x2		5 x3		7x1½	$9.00	8x3½		10x3	$14.00	12x9	
2 x ¾		3 x1½		4 x2½		5 x3½		7x2		8x4		10x4		12x10	



G-575

Complete Catalog furnished on request

Plumbing, Heating, Water and Gas Supplies



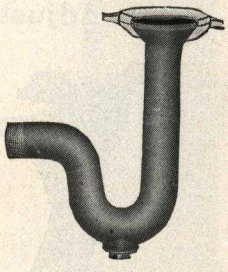
G-103

"M. I. W." P Traps

Traps shown here are offered as "Standards" in their respective classes for use on lavatories, sinks, laundry tubs, etc. We have not illustrated every pattern stocked, but lists applying to a class or design are complete. Only close grain, tough, but readily machinable Gray Cast Iron is used in our line of castings.

Size 1½-inch, 2½-inch Seal

Kind	With Brass Cleanout			Without Cleanout		
	No.	Painted	Galv.	No.	Painted	Galv.
Male Inlet and Outlet	G-100	$1.05	$1.55	G-104	$0.80	$1.30
Female Inlet and Male Outlet	G-101	1.05	1.55	G-105	.80	1.30
Male Inlet and Female Outlet	G-102	1.05	1.55	G-106	.80	1.30
Female Inlet and Outlet	G-103	1.05	1.55	G-107	.80	1.30



G-120

3½-inch Seal with Brass Cleanout

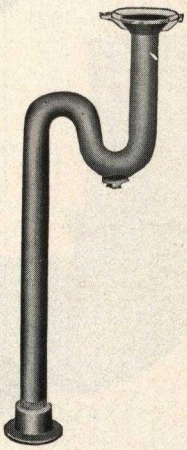
Catalog No.	Kind	Painted			Galvanized		
		1¼ in.	1½ in.	2 in.	1¼ in.	1½ in.	2 in.
G-110	Male Inlet and Outlet	$0.75	$1.00	$1.75	$1.15	$1.50	$2.50
G-111	Female Inlet and Male Outlet	.90	1.15	2.00	1.30	1.65	2.75
G-112	Male Inlet and Female Outlet	.90	1.15	2.00	1.30	1.65	2.75
G-113	Female Inlet and Outlet	1.00	1.25	2.25	1.40	1.75	3.00



G-140

3½-inch Seal Without Cleanout

Catalog No.	Kind	Painted			Galvanized		
		1¼ in.	1½ in.	2 in.	1¼ in.	1½ in.	2 in.
G-114	Male Inlet and Outlet	$0.55	$0.80	$1.50	$0.95	$1.30	$2.25
G-115	Female Inlet and Male Outlet	.70	.95	1.75	1.10	1.45	2.50
G-116	Male Inlet and Female Outlet	.70	.95	1.75	1.10	1.45	2.50
G-117	Female Inlet and Outlet	.80	1.05	2.00	1.20	1.55	2.75



G-141

2½-inch Seal with Cleanout

Catalog No.	Kind	Painted		Galvanized	
		1¼ in.	1½ in.	1¼ in.	1½ in.
G-120	Bell Inlet and Male Outlet	$0.75	$1.00	$1.15	$1.50
G-121	Male Inlet and Outlet	.75	1.00	1.15	1.50
G-122	Male Inlet and Female Outlet	.90	1.15	1.30	1.65
G-123	Female Inlet and Male Outlet	.90	1.15	1.30	1.65
G-124	Female Inlet and Female Outlet	1.00	1.25	1.40	1.75

"M. I. W." Long S Traps

2½-inch Seal with Brass Cleanout

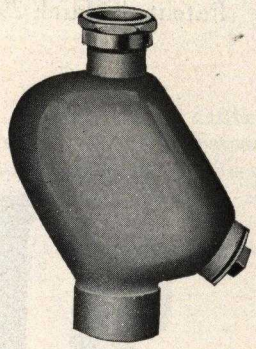
Length over all, about 2 feet. Loose floor flange adjusts about 1 inch.

Catalog No.	Kind	Painted		Galvanized	
		1¼ in.	1½ in.	1¼ in.	1½ in.
G-140	Funnel or Bell Inlet	$1.50	$2.00	$2.25	$2.90
G-141	Male Inlet	1.50	2.00	2.25	2.90

	1¼ in.	1½ in.	2 in.
Add for N. P. Slip Joint Nuts	$0.40	$0.45	$0.45



G-205



G-131

"M. I. W." Bottle Traps

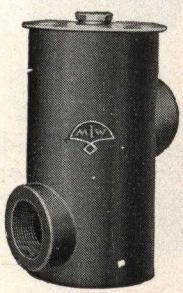
2½-inch Seal with Brass Cleanout

Catalog No.	Kind	Painted		Galvanized	
		1¼ in.	1½ in.	1¼ in.	1½ in.
G-130	Female and Female	$1.00	$1.50	$1.50	$2.25
G-131	Male and Female	1.00	1.50	1.50	2.25

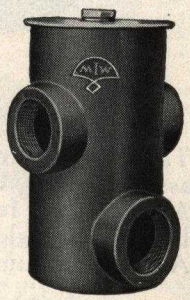
"M. I. W." Drum Traps

Catalog Number	Size	Openings	With N. P. Brass Cover		Without N. P. Brass Cover	
			Painted	Galv.	Painted	Galv.
G-200	4x 5	2 tapped, 1¼ or 1½ in	$2.25	$3.25	$1.00	$2.00
G-210	4x 8	2 tapped, 1½ or 2 in	2.50	3.50	1.25	2.25
G-211	4x 8	3 tapped, 1½ or 2 in	2.75	3.75	1.50	2.50
G-212	4x 8	4 tapped, 1½ or 2 in	3.00	4.00	1.75	2.75
G-213	4x 9	1 tapped, 1½ or 2 in	2.50	3.50	1.25	2.25
G-214	4x 9	2 tapped, 1½ or 2 in	2.75	3.75	1.50	2.50
G-215	4x 9	3 tapped, 1½ or 2 in	3.00	4.00	1.75	2.75
G-216	4x10	1 tapped, 1½ or 2 in	2.50	3.50	1.25	2.25
G-217	4x10	2 tapped, 1½ or 2 in	2.75	3.75	1.50	2.50
G-218	4x10	3 tapped, 1½ or 2 in	3.00	4.00	1.75	2.75

Nickel Plated Brass Covers only—threaded for 3-in. I. P.—$1.25 each.



G-210



G-211

"M. I. W." Drum Trap Ell

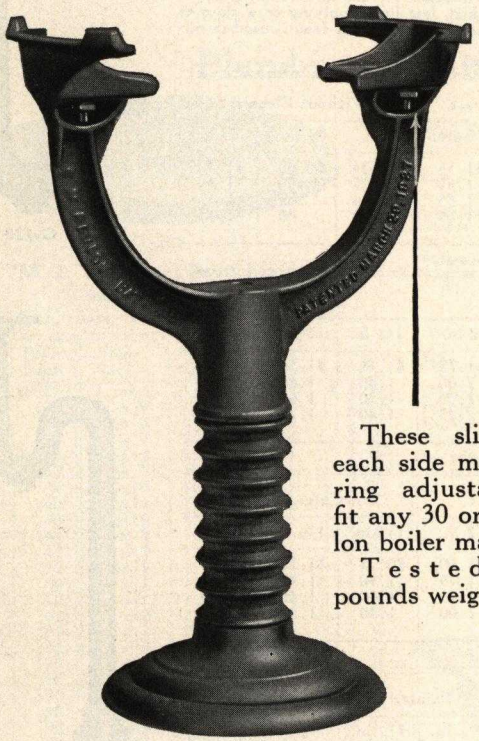
Made in one size only.

Catalog Number		Painted	Galvanized
G-205	For 1½ in. Iron Pipe	$1.00	$1.50

O. M. REDLON BATH, MAINE

Corner Front and Ferry Streets

Adjustable Boiler Stand



These slides on each side make the ring adjustable to fit any 30 or 40-gallon boiler made.

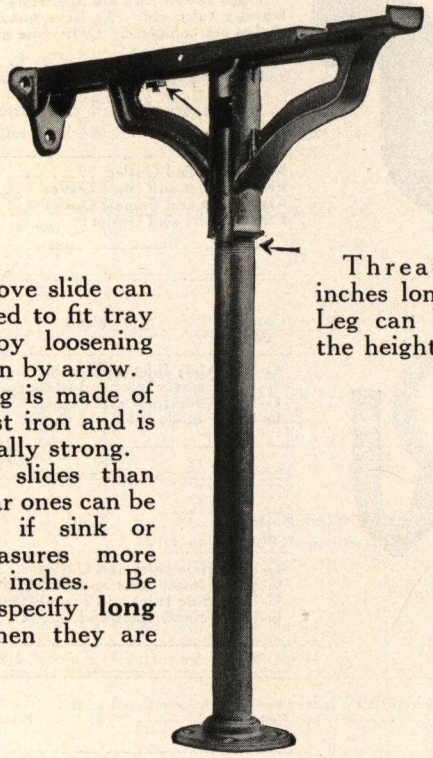
Tested 1,000 pounds weight.

Can be adjusted to different heights.

This stand can be used for many different sizes. You can be positive that it will fit on the job.

Patented March 29, 1927.

Adjustable Sink and Tray Leg



The above slide can be adjusted to fit tray or sink by loosening bolt shown by arrow.

The Leg is made of heavy cast iron and is exceptionally strong.

Longer slides than the regular ones can be furnished if sink or tray measures more than 21 inches. Be sure to specify **long slides** when they are required.

Thread three inches long so the Leg can be made the height desired.

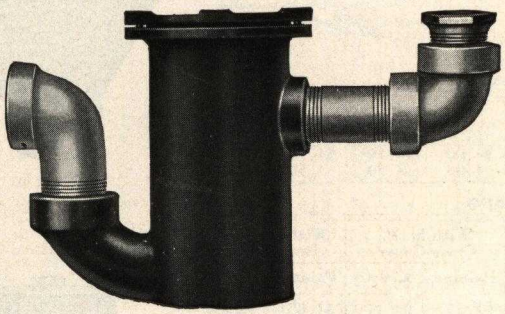
Specify whether wanted for Sink or Tray as the pipe standards on Sink legs are 6 inches longer.

Patented January 11, 1921.

Adjustable Bath Tub Traps

Patent applied for

1½ inch Outlet **1¼ inch Inlet**



Trap No. 1

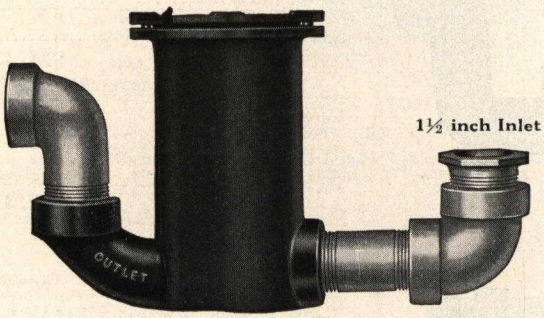
For Tub with Legs

The 1¼-inch and 1½-inch inlets of these traps are brass bell mouth bushings for soldering connections.

A time saving feature of this trap is the outlet which will swing to angle desired.

A polished aluminum trap dome can be furnished if wanted. This dome has a guide post on the under side which fits into hole of cast iron trap cover. This permits perfect fit to floor without use of screws. Gives 1¼-inch adjustment up or down.

1½ inch Outlet



Trap No. 2

For Built-In Tub

These Traps Can Be Furnished In Black or Galvanized

Water Closet Fittings

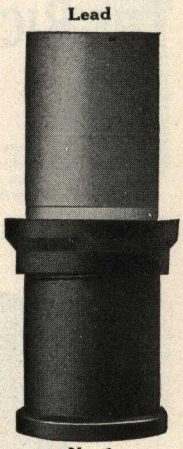
Patented Oct. 29, 1929

The upper part of the fittings is made of 8-pound lead pipe. This feature gives a cast iron bend with lead connection for closet. Giving the same service as an all lead bend.

Made to fit either Standard or Extra Heavy Soil Pipe.

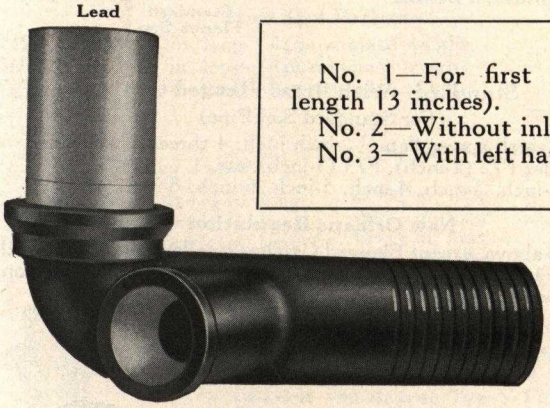


No. 2

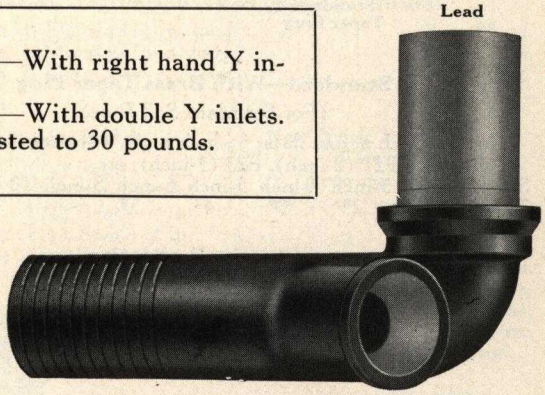


No. 1

No. 1—For first floor (full length 13 inches).
No. 2—Without inlet.
No. 3—With left hand Y inlet.
No. 4—With right hand Y inlet.
No. 5—With double Y inlets.
All tested to 30 pounds.



No. 4—With Right Hand Y Inlet



No. 3—With Left Hand Y Inlet

The inlets on Nos. 3, 4 and 5 are cast in such a manner that they are guaranteed not to siphon any fixture when water closet is flushed. The Nos. 3, 4 and 5 fittings can be furnished with 1½-inch screw inlet connections if desired instead of the hub for caulking. In ordering, be sure to specify "with screw inlet" if you want this rather than the regular one.

The length of these fittings is 16 inches from end to center of upright. Lead above hub is 6 inches long and is part of fitting. The lead part of the fitting can be any length desired by simply specifying on order.

The lead piece is caulked into hub in such a way that a solid metal connection is made. No oakum or other non-metallic substance is used.



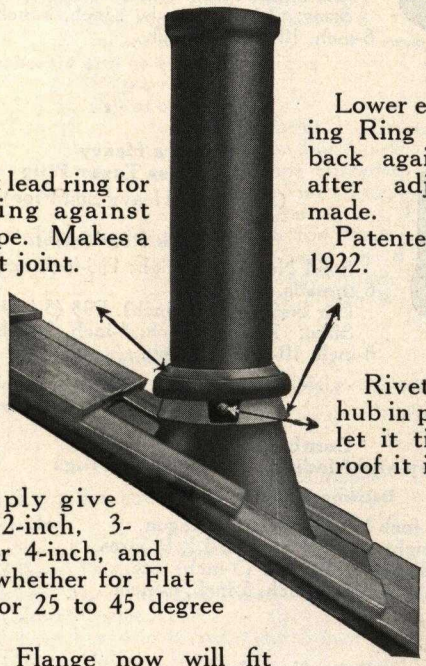
No. 5

Adjustable Roof Flange

Soft lead ring for caulking against soil pipe. Makes a perfect joint.

Lower edge of caulking Ring that dresses back against flashing after adjustment is made.

Patented August 8, 1922.



Rivet that holds hub in place and will let it tip to fit the roof it is placed on.

Simply give size; 2-inch, 3-inch or 4-inch, and state whether for Flat to 25 or 25 to 45 degree roof.

One Flange now will fit both Standard and Extra Heavy Soil Pipe.

Flashing made of 14-ounce copper as well as galvanized Armco iron Specify copper or galvanized as desired.

THE RICHMOND FOUNDRY & MFG. CO., INC. RICHMOND, VIRGINIA

1100-1200 Hermitage Road

Representatives:

New York, N. Y.
H. M. Flemming Co., 30 Church St.
Los Angeles, Cal.
M. W. Wuesthoff, 2461 Enterprise St.

Philadelphia, Pa.
R. D. Bitzer Co., 3142 North Broad St.

Pittsburgh, Pa.
Frank H. Kuhn, House Bldg.
Birmingham, Ala.
W. T. Mayfield Co., Webb-Crawford Bldg.

R F&M CO
Trade Mark



Standard Taper Plug

Iron Body Trap Screw Ferrules

(Cleanouts)

All-Brass Bodies Instead of Iron Bodies Furnished, if Desired (See below)



Standard Flange Cap

Standard—With Brass Taper Plug

(For Standard Soil Pipe)

Nut 1¼-inch across flats; ⅜-inch high; 4 threads I. P. size.
Our Series F22 (2-inch), F23 (3-inch), etc.

Sizes:	2-inch	3-inch	4-inch	5-inch	6-inch	8-inch	10-inch	12-inch
Tapped:	1½"	2"	3"	4"	5"	—	—	—

Chicago Regulation

Brass taper plug has standard I. P. size thread.

Standard—With Brass Flanged Cap

(For Standard Soil Pipe)

Nut 1¼-inch across flats; 5/16-inch high; 4 threads I. P. size.
Our Series F72 (2-inch), F73 (3-inch), etc.
Sizes: 2-inch, 3-inch, 4-inch, 5-inch, 6-inch, 8-inch, 10-inch.

New Orleans Regulation

Same as above, except Flanged Cap has smaller solid nut ½-inch high; 4-inch body threaded 3½ inches I. P. size. All sizes conform to code.

Florida Regulation

Red or Yellow Brass Bodies—Light C. I. Plugs—All sizes.



Extra Heavy Taper Plug

Extra Heavy With Brass Taper Plug

(For Extra Heavy Soil Pipe)

Nut 1¼-inch across flats; ⅜-inch high; 4 threads I. P. size.
Our Series F32 (2-inch), F33 (3-inch), etc.
Sizes: 2-inch, 3-inch, 4-inch, 5-inch, 6-inch, 8-inch, 10-inch, 12-inch.

Extra Heavy With Brass Flanged Cap

(For Extra Heavy Soil Pipe)

New England Pattern

Nut 1⅛-inch across flats; ½-inch high; 4 threads (straight).
Our Series F82 (2-inch), F83 (3-inch), etc.
Sizes: 2-inch, 3-inch, 4-inch, 5-inch, 6-inch, 8-inch, 10-inch.



Extra Heavy Flanged Cap



New York Regulation

Extra Heavy With Brass Taper Plug

(For Extra Heavy Soil Pipe)

New York Regulation

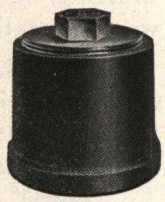
Solid Nut 1-inch high; 1½-inch across flats; 6 threads, I. P. size.
Our Series F92 (2-inch), F93 (3-inch), etc.
Sizes: 2-inch, 3-inch, 4-inch, 5-inch, 6-inch, 8-inch, 10-inch, 12-inch.

Extra Heavy With Brass Taper Plug

(For Extra Heavy Soil Pipe)

Boston (& Ohio) Regulation

Nut ¾-inch high; 1½-inch across flats; 6 threads, I. P. size.
Takes Standard Test Plug. Our Series F42 (2-inch), F43 (3-inch), etc.
Sizes: 2-inch, 3-inch, 4-inch, 5-inch, 6-inch, 8-inch, 10-inch, 12-inch.



Boston (& Ohio) Regulation

Combined Extra Heavy and Medium Brass Taper Plugs

Baltimore Regulation

Nut solid, 1-inch high, 1½-inch hexagon.
Body full height, tapped Standard I. P. sizes.
Our Series B22 (2-inch), B23 (3-inch), etc.
Sizes: 2-inch, 3-inch, 4-inch, 5-inch, 6-inch.

Drive Ferrules

Cast Iron or Brass

2x3	inches long	4x2	inches long
3x3¼	inches long	4x3⅝	inches long



Countersunk Plugs

We are prepared to furnish any of our Trap Screw Ferrules with Countersunk Plugs.

All Brass Trap Screw Ferrules

(Cleanouts)

Trap Screw Ferrules (Cleanouts) furnished with brass bodies instead of iron bodies when specified. Any style plug.



U. S. Govt. and Norfolk Regulation

Norfolk Regulation

Cover (Flanged, as cut or Taper Plug). Nut (Solid 1-inch high, as cut or Countersunk).
For Extra Heavy Soil Pipe: 2-inch, 3-inch, 4-inch, 6-inch.
Our Series F52 (2-inch), F53 (3-inch), etc.

"Gold Nugget" Brass Ferrules



Straight Brass Ferrules (Standard)


Reducing Ferrules (Standard)


One-Eighth (⅛) Bend (Standard or Extra Heavy)


One-Quarter (¼) Bend (Standard or Extra Heavy)


New York Regulation


Flared End Ferrules



Taper Brass Ferrules (Extra Heavy)

For Standard Pipe

Standard Straight Ferrules

2x3 in. long
2x3½ in. long
2x4 in. long
3x4 in. long
4x3½ in. long
4x4 in. long
4x4½ in. long
4x4¾ in. long
4x5 in. long
5x4⅝ in. long
6x4⅝ in. long

Spec'l 4x4.32 oz. Spec'l 4x4½.40 oz.
Spec'l 4x6.48 oz.

Standard Reducing

2x1½ in.—3½ in. long
2x1¼ in.—4 in. long
2x1½ in.—4 in. long

Flared End Ferrules

	Approx. Wt.
2x4 in. long	12 oz.
3x4 in. long	18 oz.
4x4 in. long	28 oz.
5x5 in. long	72 oz.

Standard Bends

One-eighth (⅛) Bend—2 in.
One-eighth (⅛) Bend—3 in.
One-eighth (⅛) Bend—4 in.
One-quarter (¼) Bend—2 in.
One-quarter (¼) Bend—4 in.

Hub End Ferrules

2x2¼ Hub—3½ in. long—Approximate weight.....12 oz.
3x3¼ Hub—3¾ in. long—Approximate weight.....25 oz.
4x4¼ Hub—4½ in. long—Approximate weight.....30 oz.

Florida Regulation—Red or Yellow Brass

2 in.—2¼-in. I. Diam.x4½ in. long.....16 oz.
3 in.—3¼-in. I. Diam.x4½ in. long.....28 oz.
4 in.—4¼-in. I. Diam.x4½ in. long.....40 oz.

For Extra Heavy Pipe

Extra Heavy Taper

2x3½ in. long
3x3½ in. long
3x4 in. long
4x4½ in. long
5x4¾ in. long
6x4⅝ in. long

Extra Heavy Straight

	Weight
2x3½ in. long	12 oz.
2x4 in. long	16 oz.
4x4½ in. long	26 oz.
4x4½ in. long	40 oz.
4x5 in. long	40 oz.

Extra Heavy Bends

One-eighth (⅛) Bend—2 in.
One-eighth (⅛) Bend—3 in.
One-eighth (⅛) Bend—4 in.
One-quarter (¼) Bend—2 in.
One-quarter (¼) Bend—4 in.

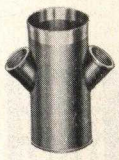
New York Regulation Ferrules

(Approved by the New York Building Code)

	Weight
2x2½ in.—4 in. long	16 oz.
3x3½ in.—4¼ in. long	28 oz.
4x4½ in.—4¾ in. long	40 oz.
5x5½ in.—5¾ in. long	64 oz.
6x6½ in.—5¾ in. long	76 oz.

Extra Heavy Reducing Ferrules

2x1¼x4 in. long
2x1½x4 in. long
2x1½x4½ in. long

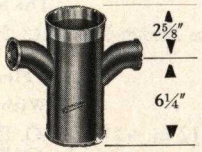


4-inch—45-degree Y-Ferrule

Double (Outlet) Y—Branches tapped 1½"x1½"; 2"x2" or 1½"x2".
Single (Outlet) Y—Branch tapped 1½" or 2".

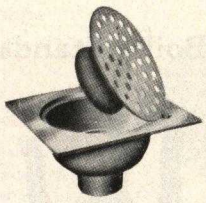
4-inch—90-degree Tee-Y Ferrules

Outlets take either Lead or W. I. Pipe, as on bath traps. Sizes as above.



Cast Iron Bell Trap Cesspools

6x6 inches—For 2-inch Soil Pipe — Plain (Short) Outlet.....Loose or Hinged Lid
Tapped for 1½ or 2-inch W. I. Pipe..Hinged Lid Only
8x8 inches—For 3-inch Std. (and 2-inch X-Hy.) Soil Pipe—Plain(Short) Outlet.....Loose or Hinged Lid
9x9 inches—For 3-inch Std. (and 2-inch X-Hy.) Soil Pipe—Plain (Short or 8 inches long) Outlet.....Loose or Hinged Lid
For 4-inch Std. Soil Pipe—Plain (Short or 8 inches long) Outlet.....Loose or Hinged Lid
Tapped for 3 or 4-inch W. I. Pipe.....Hinged Lid Only



Threaded outside for 4-inch W. I. Pipe.....Hinged Lid Only
10x10 inches—For 3-inch (and 4-inch Std.) Soil Pipe—Plain (Short or 8 inches long) Outlet.....Loose or Hinged Lid
12x12 inches—For 3 or 4-inch Soil Pipe—Plain (Short or 8 inches long) Outlet....Loose or Hinged Lid
Tapped for 3 or 4-inch W. I. Pipe Threaded Outside for 4-inch W. I. Pipe.....Hinged Lid Only
13x13 inches—For 4-inch Soil Pipe—Plain (Short or 8 inches long) Outlet..Hinged Lid Only
Tapped for 4-inch W. I. Pipe.....Hinged Lid Only

C. I. Cesspools—Brass Top Riveted On—Polished

Hinged lid neatly fitted and top secured in such a way as to obviate unsightly screw holes in corners, leaving polished surface perfectly plain. For **Schools and Institutions**—As above, except loose lid twists securely into place—deters meddling and hinge breakage.

Sizes
6x6 inches.....9x9 inches.....12x12 inches
Any style outlet shown above for Cast Iron Cesspools. (Extra for Brass Bell or N. P. Top)

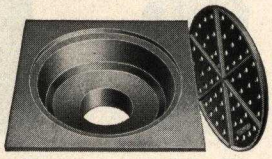
Extra Heavy C. I. Cesspools

6x6 inches—For 2-inch Soil Pipe—Plain (Short) Outlet.....Hinged Lid Only
9x9 inches—For 3-inch Std. (and 2-inch X-Hy.) Soil Pipe—Plain (Short) Outlet...Loose or Hinged Lid
9x9 inches—For 4-inch Std. Soil Pipe—Plain (Short) Outlet.....Loose or Hinged Lid
12x12 inches—For 3-inch Soil Pipe—Plain (Short) Outlet.....Loose or Hinged Lid
12x12 inches—For 4-inch Soil Pipe—Plain (Short) Outlet.....Loose or Hinged Lid
13x13 inches—For 4-inch Std. (and 3-inch X-Hy.) Soil Pipe—Plain (Short) Outlet.....Loose or Hinged Lid

All-Brass Bell Trap Cesspools

Notice: We supply promptly ANY STYLE cesspool shown for C. I. in ALL-BRASS 6x6, 9x9 and 12x12 carried regularly IN STOCK.

Cesspools and Plates

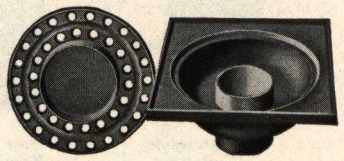


Washington Flat Top Cesspool

11 in.x11 in.

Cast Iron Receptors

6" Diam.x 9½" overall for 2" Soil Pipe
8" Diam.x11⅝" overall for 4" Soil Pipe

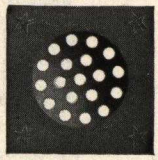


Richmond Flat Trap Cesspool

11 in.x11 in. Raised Edge

Hinged Lid Water Boxes

6 in.x6 in. Medium



Standard Cesspool Plates

(Square)

4 in., 5 in., 6 in., 7 in., 8 in., 9 in., 10 in., 12 in.

"Waterid" Quick Drains

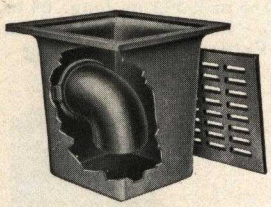


Have These Advantages Over Cesspools

Heavy cover. Will stand 5-ton rumbling load.
Slip lock cover not easily misplaced.
Full-size opening through body. Takes plunger.
Uses up tail ends of soil pipe.
No chopping up of cement to unstop line.
Permanently caulked to sewer.
Area of slots greater than area of soil pipe.
Takes up less floor space than cesspool.
Made to take 2, 3, 4, 5 and 6 inch pipe. Plain iron, brass or galvanized.
Why choke a 4-inch soil line with a 2½-inch opening cesspool?



Sand (or Garage) Trap



Sand or Garage Trap

The Richmond "Boltless"

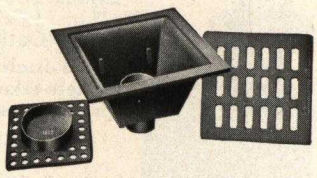
Waste Snout lifts out. No bolts. Size, 12½ in. x 14 in.; 13 in. deep.

Extra Heavy Stable Cesspools

With Trap and Grating

12 x 12 in.—2 15/16 in. O. Diam.; Outlet 2¼ in. long.
3 7/16 in. O. Diam.; Outlet 8 in. long.
14 x 14 in.—3 3/8 in. O. Diam.; Outlet 2 in. long.
3 15/16 in. O. Diam.; Outlet 8 in. long.
16 x 16 in.—3 3/8 in. O. Diam.; Outlet 2 in. long.
3 15/16 in. O. Diam.; Outlet 8 in. long.

Extra, if outlets tapped or threaded.



Extra Heavy Stable Cesspool

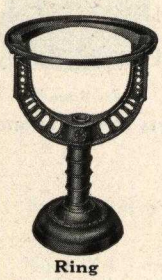
Washington, D. C., Intercepting Trap—C. I.

Garage Frame 22x22 inches, with plain cover 17¾x17¾

Boiler Stands

Ring Boiler Stands

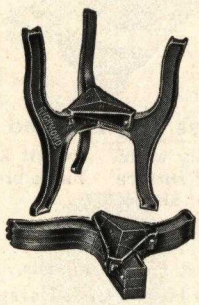
Lockwood Pattern



Ring

Nominal Size Inches	5-Ft. Boiler Capacity Gallons	Diam. of Ring Inches
12	30	12 5/8
14	40	14 15/16
16	52	16 3/16
18	66	18 5/8
20	82	20 5/8
22	100	22 3/16
24	120	24 ½

We can also supply 11⅝ in. dia. Ring and 14 9/16 in. dia. Ring.



12½ in. high
(Husky Baby)

"The Richmond Adjustable"
(Husky Baby)

Takes 12 in. (30 gal.) or 14 in. (40 gal.) Boilers.



Nip-l Stand

Nip-l Adjustable (Height) Stand

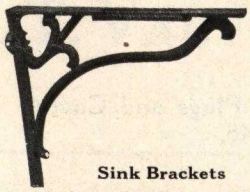
12-in., 14-in. or 16-in. Rings with Base and Yoke. You supply 1-inch Pipe Nipple (8¼ inch less than total height desired) to make any height.

"Okay" Adjustable Stand

Machined Joints

Takes 12 in. (30 gal.) or 14 in. (40 gal.) Boilers. Folds up for shipping and storing. Height 15 inches

Brackets



Sink Brackets

Sink Brackets (Adjustable)

Size No.	Height Inches	Width Inches	For Sinks Inches
1	10	12	14 to 18
2	12	15	18 to 22



Drain Board Bracket

Drain Board Bracket

(For wooden drain boards)
Overall length 14½ in.

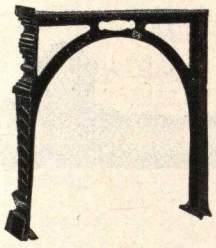


Tank (or Wall) Bracket

Tank (or Wall) Bracket

Short—10½ in. center to center of lugs
Long—15 in. center to center of lugs

Tray and Sink Legs



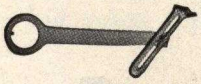
Laundry Tub Legs (Alberene Pattern

Laundry Tub Legs
(Alberene Pattern)

Sizes
No. 1—15 in. wide x 15 in. high
No. 3—17 in. wide x 16 in. high
No. 4—15 in. wide x 16 in. high



Half Round Leg
For Enameled Sinks
Plain or Extension Type
Painted white





Adjustable Round Legs

These Legs are furnished complete, with reaches and bolt, as shown. They have an adjustment of 2 inches in height and 6 inches in reach.

Short (for Wash Trays)—Long (for Sinks)

Reaches—(with Bolt)
For Porcelain Tubs and Sinks
No. P 16—Adjustment 13¼ to 18½ in.
No. P 17—Adjustment 9½ to 15 in.
No. P 21—Adjustment 19½ to 23 in.

The attention of manufacturers of Porcelain or Stoneware is directed to these Reaches and to the Waste Connectors shown below.

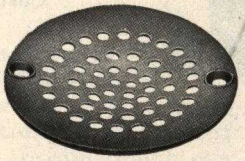
Sink Couplings and Strainers



Sink Couplings for Iron Pipe
Tapped for W. I. Pipe, 1¼, 1½, 2 inches



Sink Couplings
For Lead Pipe



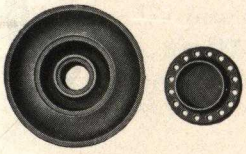
Sink Strainers—Iron
4½ inches—4¾ inches—5 inches

Refrigerator Traps and Drip Pans

Plain, Galvanized or Aluminum Painted

Refrigerator Drain Traps

(7½-inch diameter.) Tapped for 1¼ or 1½-inch pipe



Loose Strainer

Loose or Hinged Strainer

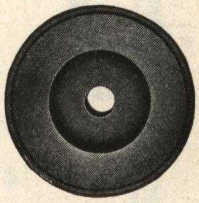
The hinged Drain Trap Strainer is secured in place by riveted hinge, which allows easy access for cleaning, but prevents removal of strainer.



Hinged Strainer

Refrigerator Drip Pan

(10-inch diameter) Tapped for 1¼-inch pipe



Stop-Cock Box Cover—C. I.

5-inch Diameter—Drops in spigot end of 4-inch pipe



Drum Traps

Brass Cover, Plain or Nickeled

Sizes
4 x 9 inches—Upper (Side) outlet, 1½ inches. Lower (opposite) outlet, 1½ inches.
4 x 5 inches—Side Outlet, 1½ in. Bottom Outlet, 1½ in.

Solder Pots

Well-shaped Pots with Sturdy Handles. 5, 6, 7, 8, 9, 10, 12 inches.



Laundry Tub Waste Connector and Collar

Single or Double

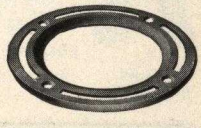
Plain—As illustration, for Cement Tubs.
Tapped—For Soapstone, Porcelain and Slate Tubs.
Furnished with or without overflow stem.

Fresh Air Inlets—C. I.

4½-inch "Desper"—To drive in spigot end of 4-inch Pipe.
7½-inch "Quixet"—To fasten in spigot end of 4-inch Pipe.

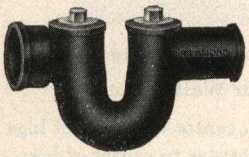
Cast Brass Closet Flanges

Light and Heavy Patterns, also Heavy Pattern 1¼ in. deep; tapped for 4" W. I. Pipe.



U. S. Government Items

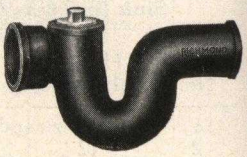
We can supply such items as Cesspools, Brass Cleanouts, Cleanout Plugs and Covers, Manhole Frames and Covers to conform to U. S. Specifications No. 448.



Improved Running Traps

Sizes—2-inch, 3-inch, 4-inch

Full weight—Heavy Brass Plugs—Smooth Finish. Both types have groove in hub for caulking.





Cast Iron "P" Traps

New York Pattern

Plain or Galvanized

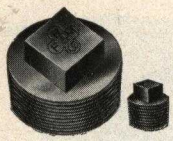
In 1½ or 2-inch sizes.
With brass or iron plug.
Slip joint bushings also furnished.

"Perfect" Sewer Traps

Approved by New York City Board of Transportation.

A perfect sewer-gas trap and back water valve.





Pipe Plugs

Cast Iron—Square Head
In Stock

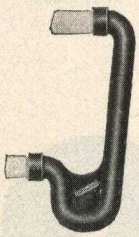
All sizes from ⅛ to 8 inches.
Black or Galvanized.

Floor Flanges

Cast Iron—Countersunk for Screws (Not Faced)
In Stock

All sizes from ⅜x3 to 2x5½.

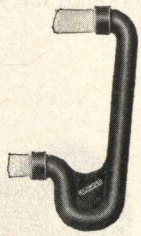




Brass

"Hot Dog" Water Heaters

A real good firebox heater at low prices.
Note the slope. Dead coals fall away. Better draft.
Note the web. Adds heating surface. Poker and ashes can't catch in the loop.
A "pipe type" heater cheaper than you can make, and minus the leaky joints.
No. 1—20 to 40 gallons. No. 2—40 to 60 gallons.
1-inch tappings on 9-inch centers which fit practically all boilers made today. Every "Hot Dog" tested.



Iron

NOTICE

We will gladly consider the manufacture and sale, on a royalty or other basis, of practical patented plumbing specialties or devices.

Besides our plumbing business we are specialists in the quantity production of small finely finished, easily machined castings of iron, brass or aluminum. We solicit inquiries from manufacturers or distributors of machines or devices requiring small precise castings.

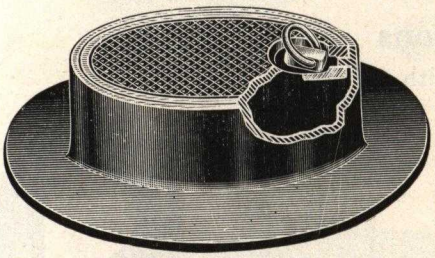
"A Dependable Source of Supply"

To Wholesalers only: May we send you our current Price List?

S. E. T. Valve & Hydrant Co. New York City

General Offices—50 Church Street

Representative: Walton, N. Y., Walton Foundry Co.



Model No. 1

The Jersey Meter Box

A Protective Top for Outside Meter Installations

OUTER LID Reinforced to withstand unusual sidewalk traffic shocks. Our specially designed **Combination Ring Handle Lock** fastens securely as well as providing positive means of unlocking and lifting out.

Or, **Screw Lifting Lock** operated with pentagonal wrench. Boxes are provided with FROST PROTECTION Inner Lid unless otherwise ordered.

Model No. 1

Depth of Body—5 inches.

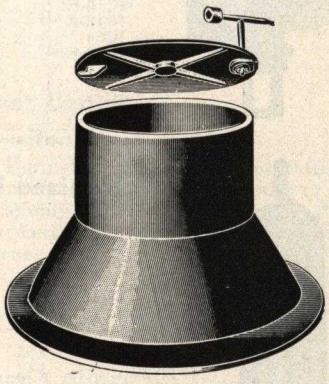
Diameter of Top Opening—12 inches. For use with Tile or Concrete Under Housing.

Diam. Inches	Weight Pounds	Base Inches	List
18	50	20	$7.00
20	57	22	7.25
20	62	23	8.00

Model No. 2

Depth of Body—10½ inches.
Diameter of Top Opening—12 inches.
For use with Tile or Concrete Under Housing.

Diam. Inches	Weight Pounds	Base Inches	List
15	50	18	$8.00
18	53	20	8.50
20	60	22	9.00
20	65	23	9.50
20 Ex.Hy	130	23	12.50



Model No. 2

Allowance of 50c from list when inside cover is not used.

Model No. 3
Meter Box for Large Meter Pits

Depth of Body, 8 inches.

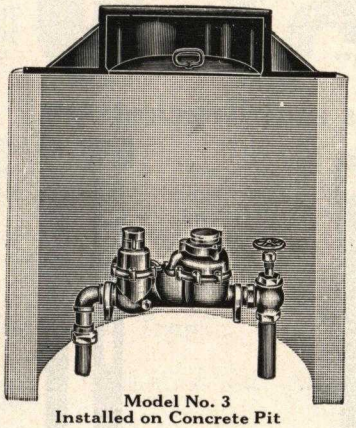
Diameter of Top Opening, 20 inches.

Diameter of Base, 39 inches.

Weight, 375 pounds.

List Price, $32.00.

Has reinforced cover for light driveway traffic.



Model No. 3
Installed on Concrete Pit



Adjustable Manhole Top

Adjustable Manhole Top

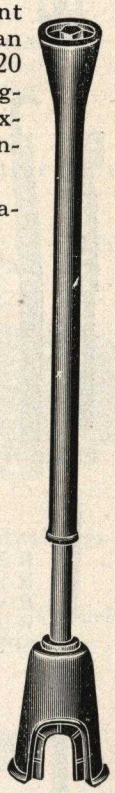
Prevents hold-ups in street traffic. Replacement or readjustment can be accomplished in 20 minutes without digging. Reduces expense of street maintenance.

Prices on application.

No. 13 Curb Box

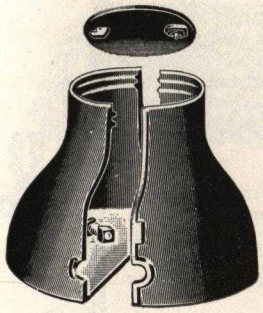
Sliding Type with Wedge Lock. Takes standard key. 3-foot to 4½-foot extension with extension rod.

List Price, each.....$2.40



No. 13 Curb Box

Model No. 4



Model No. 4

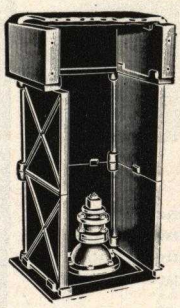
For protection in cellars and outside installation in warm climates.

Completely encloses the Meter, permits protection packing. Locked with pentagonal wrench. Inside bolts hold box intact and cannot be reached without removing covers.

Weight, 50 pounds. Height, 12 inches. Top Opening, 5⅛ inches. List, $6.50. Base, 12 inches.

Valve and Meter Housings

Cast Iron Sectional, Roadway Boxes.



Valve and Meter Housing

Valve is always accessible for inspection, repacking or operation.

Adjustable frame, non-breakable. Non-rattling cover.

Sizes to 72 inches diameter. Any depth.

Square model 15"x17".

Round model 27" to 48".

Elliptical model 48" to 72".

Made in variety of shapes for housing valves, meters, and gas governors.

RIVERSIDE FOUNDRY & GALVANIZING CO.

General Office and Factory—500-506 Harrison Street, Kalamazoo, Mich.

Manufacturers of

High Grade Light and Medium Gray Iron Castings and Plumbers' Supplies

Galvanized Goose Neck Syphons

We do not furnish brass seats or rubber gaskets with syphons



Plate No.	Size, Inches	Depth of Tank, Inches	Diam. Brass Seat Required, Inches
R 63	1⅛	8 or 9	1½
*R 63-E	1⅛	8 or 9	1½
R 77	1⅛	8 or 9	1½
R 62	1⅛	10	1½
*R 70	1⅛	10	1½
R 18	1¼	10	1½
*R 18-E	1¼	10	1½
R 18-A	1¼	11	1½
R 64	1¼	8 or 9	1½
*R 64-E	1¼	8 or 9	1½
R 75	1¼	13	1½
R 23	1¼	12	1½
*R 33	1⅜	8	1⅝
R 33-A	1⅜	8	1⅝

Plate No.	Size, Inches	Depth of Tank, Inches	Diam. Brass Seat Required, Inches
*R 34	1⅜	9	1⅝
R 68	1⅜	9	1½
R 65	1⅜	11	1¾
R 22	1⅜	9	1⅝
R 22-A	1⅜	10	1⅝
R 23-A	1⅜	12	1⅝
*R 35	1⅜	10	1⅝
R 35-A	1⅜	10	1⅝
R 32	1½	10	1¾
R 32-A	1½	11	1¾
R 19	1½	11	1¾
R 76	1½	9 or 10	1¾
R 78	1½	14	1¾
R 24	1½	12	1¾

*Ear on top instead of loop.





Hustler

Galvanized Hustler Syphons

Plate No.	Size Inches	Depth of Tank Inches	Diameter Brass Seat Required Inches
R 45	1¼	8 or 9	1½
R 27	1¼	10	1½
R 28	1⅜	10	1⅝
R 28-B	1⅜	9	1⅝
R 73	1⅜	10	1⅝
R 29	1½	10	1⅝
R 74	2	for low down tank	2⅝



Plunger

Galvanized Plunger Cone Syphons

Plate No.	Size Inches	Depth of Tank Inches	Diameter Brass Seat Required Inches
RS 6	1⅛	8 or 9	1½
RP	1⅛	10	1½
R 46	1¼	8 or 9	1⅝
R 39	1¼	10 or 11	1⅝

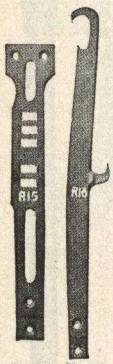
Galvanized Success Cone Syphons

R 49	1⅛	9	1½
RS 1	1¼	10	1½
RS 2	1½	10	1¾
RS 11	1½	9	1¾

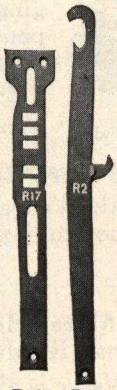


Success

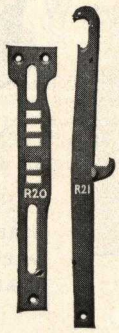
Crossbars, Levers and Brackets



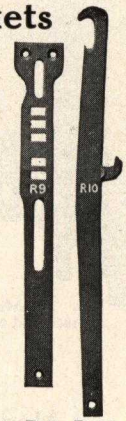
R-15 R-16



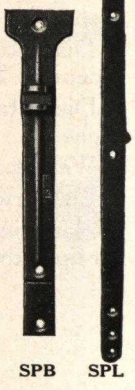
R-17 R-2



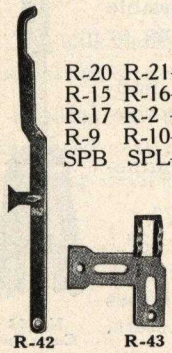
R-20 R-21



R-9 R-10



SPB SPL



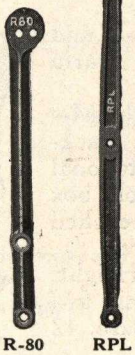
R-20 R-21—For tank 8 inches wide.
R-15 R-16—For tank 9 inches wide.
R-17 R-2 —For tank 10 inches wide.
R-9 R-10—For tank 11 inches wide.
SPB SPL—For tank 8 inches or 10 inches wide.



R-81

R-42 R-43—For tank 16 inches long.
R-48 R-43—For tank 17 inches long.
R-44 R-43—For tank 20 inches long.
R-52 R-43—For tank 21 inches long.

R-42 R-43



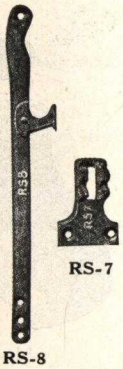
R-80 RPL

R-80 R-81—For low down tank.
RPL RPB—For small tank and plunger syphon.
RS-8 RS-7—For iron or wood tank.



RPB

This represents only a small portion of the extensive line we can furnish. If other styles are required, send for complete catalogue. We also make up and furnish special designs according to your specifications.



RS-8 RS-7

Plumbers' Cast Iron Specialties

Galvanized Refrigerator Drains



RT 30-31

7¾-inch Diameter.
Tapped 1¼ or 1½-inch I. P.



RT 121-122

4x11 inch Oval
Tapped 1¼ inch I. P. only.



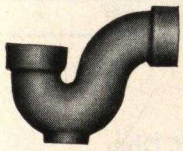
RT 32-33

10-inch Diameter.
Tapped 1¼ or 1½-inch I. P.

Sink Traps

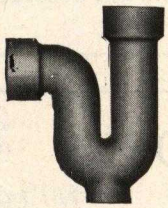
Black or Galvanized

With or without brass clean-out plugs.



R-115

Female inlet and outlet for 1½ or 2-inch I. P. Seal 3-inch on both. Cleanout ¾ and 1-inch.



R-116

Female inlet and outlet for 1½ or 2-inch I. P. Seal 3½-inch and 6-inch. Cleanout 1 and 1¼-inch.



R-117

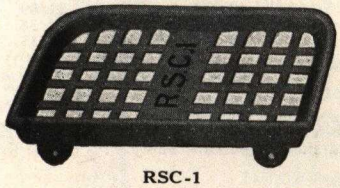
Male inlet and outlet for 1¼-inch I. P. only. Seal 2-inch. Cleanout ¾-inch.

Centrifugal Sink Traps

RT-1

Centrifugal Traps are made in 1½-inch size only. They are adjustable. Galvanized only.

Galvanized Soap Cups



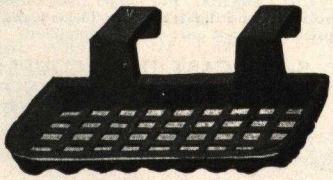
RSC-1

Screw on. Size 3½x6 inches.

RSC-1

RSC-2

Hang over. Size 3½ x 6 inches.



RSC-2

Drum Traps

Black or Galvanized

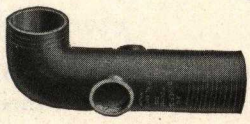
With or without Chromium Plated Covers and Gaskets.

Plate No.	Size Inches	Tapped Inches	Number Openings
2	4x5	1½	2
7	4x5	2	2
14	3x6½	1½	2
4	4x8	1½	2
8	4x8	2	2
5	4x8	1½	3
9	4x8	2	3
11	4x8	1½	3
12	4x8	2	3
6	4x8	1½	4
10	4x8	2	4
13	4x8	1½ or 2	4



No. 4

Closet Bends



No. 20

No. 20

Furnished black, with or without flange collar, tapped both sides or one side only, either 1½ or 2-inch I. P. or without side openings. Size 4x5x15 inches.

No. 25

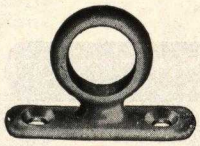
Same as No. 20 except hub instead of flanged collar.

Flange Collars

4x1¼-inch Slotted.
4x1½-inch Regular.
4x2¼-inch.
4x3-inch.
4x4-inch.
4x4¾-inch.
4x6-inch.

Soil Pipe Fittings

4-inch Standard ⅛ Bend.
4-inch Standard ¼ Bend.
4x2-inch Standard Y.
4x4-inch Standard Y.
4x2-inch Standard T.
4x4-inch Standard T.
4x1½-inch Tapped—Standard



Galvanized Pipe Hanger Rings

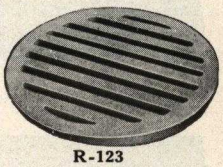
Sizes

No. 0—⅜ inch. No. 1—½ inch.
No. 3—¾ inch.

Bar Strainers

R-123

5-inch Diameter only.



R-123



Galvanized Sink Strainers

Sizes

4½ inches. 4¾ inches. 4⅝ inches.
5 inches.

Furnace Water Heaters

They are made with brass cleanout plugs.

Sizes

12 inches long. Tapped ¾-inch I. P.
16 inches long. Tapped ¾-inch I. P.

JOHN SIMMONS COMPANY NEW YORK, N. Y.

Main Office—110 Centre Street

Warehouses, Pipe Yards, Fabrication Plant—Long Island City, New York

The "Simmons" Sewer Trap

This Sewer Gas Trap and back water valve can be depended on to fulfill permanently all requirements.



Type F

Approved by the New York Board of Transportation

A device which allows fluids to pass a given point freely in one direction and automatically prevents their return beyond a given point.

In continuous service for a number of years by Engineers, Architects, Municipal Boards, Plumbers and Property Owners.

The increasing prevalence of explosions in sewers, caused by gasoline, etc., is rapidly making additional protection absolutely necessary to prevent flooding of basements and the backing up of dangerous gases under pressure. For this protection the Simmons Sewer Trap is recommended and will absolutely do the work.

SOMERVILLE IRON WORKS

Chicago, Illinois
Somerville, New Jersey

Portland, Oregon
San Francisco, California
New York City

Cleveland, Ohio
Chattanooga, Tennessee

Iron Pipe Sizes—5 Foot Units



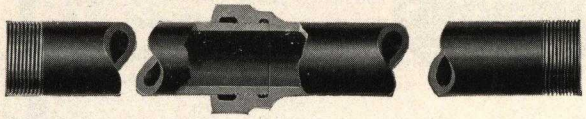
No. 1—Tapped and Threaded Ends



No. 2—Double Tapped Ends



No. 3—Double Threaded Ends



Cross Section of Tapping

The shoulder preceding tapping deflects strain from the connection to full wall thickness in piping unit; protects both tapping and threading from effect of the elements; provides holder to keep piping line intact; and serves as guide ring to facilitate proper installation.

Somerville (S-I-W) Tapped and Threaded Cast Iron System

(Patents Pending)

PERMANENT—PRACTICAL—COMPETITIVE

"X" Weight Pipe

Size Inches	Weight Per Ft. Pounds	Weight* Per 5 Feet No. 1 Unit Pounds	No. 1, No. 2, No. 3 Pipe List Price Per Lineal Foot	Size Inches	Weight Per Ft. Pounds	Weight* Per 5 Feet No. 1 Unit Pounds	No. 1, No. 2, No. 3 Pipe List Price Per Lineal Foot
1½	3.7	18.5	$0.40	5	18.4	92.0	$1.89
2	5.5	27.5	.57	6	24.0	120.0	2.34
2½	7.0	35.0	.76	8	34.0	170.0	3.15
3	9.5	47.5	.98	10	47.0	235.0	5.10
4	13.0	65.0	1.34	12	60.0	300.0	6.50

*Other units heavier or lighter in proportion to tappings provided.

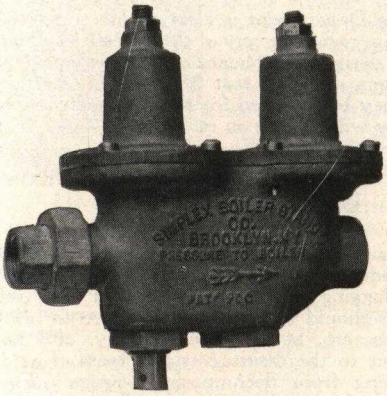
Cut Lengths: For longer than 24-inch sections, apply full list price for 5-foot unit of same diameter—for 24-inch and shorter sections, apply 65% of full list price for 5-foot unit of same diameter.

S-I-W CAST IRON COUPLINGS
S-I-W CAST IRON NIPPLES
S-I-W EXPANSION FITTINGS
S-I-W SLEEVE HUB FITTINGS
S-I-W DRAINAGE FITTINGS

Description and list prices on application

SIMPLEX BOILER STAND CO. INC. BROOKLYN, N. Y.

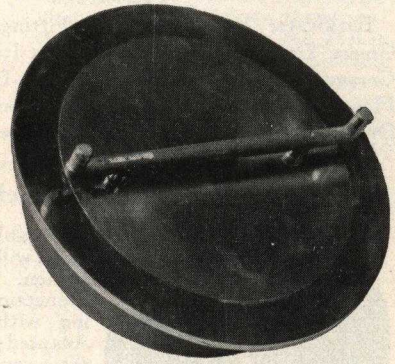
Office and Factory—239 Waverly Avenue



Simplex Automatic Pressure Control Valve for Water Heating Systems

Bronze throughout with By-Pass for quick filling. ½-inch Union.

By removing lower plugs, strainers and entire working parts drop out for cleaning and inspection. Filtered on both sides of line, with strainers 1x1¾ inches. The only valve having this advantage.



Deck Plugs

Bronze Diaphragm Relief Valves

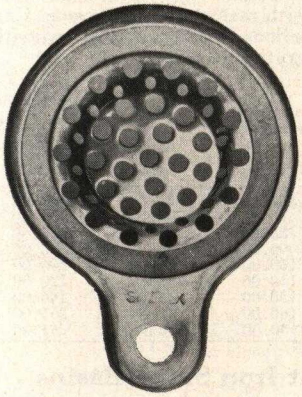
Fire Tank Strainers

Fit-All Cleanout Plugs

FIT=ALL
It Fits Them All

M. & B. PATS.

We are licensed distributors of above Patented Plug made by M. & B. Mfg. Co.
Sizes ½-inch to 6 inches, inclusive.

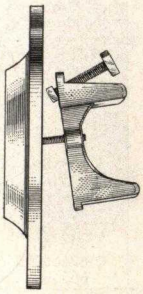


Fresh Air Plate with Sill Cock Connection

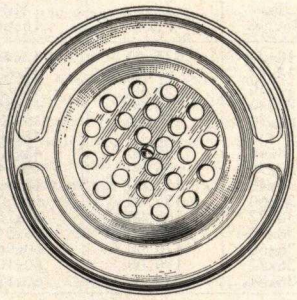


Filling Plugs with Keys

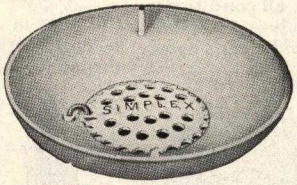
Fresh Air Plates



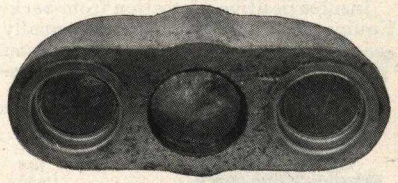
Side View



Front View



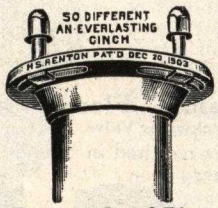
Refrigerator Waste Pans



Vent Headers



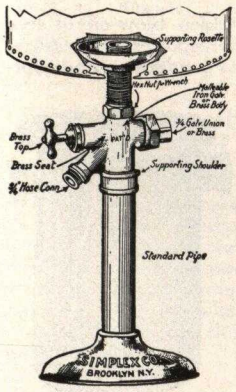
Renton Gaskets



Renton Lead Pipe Floor Flanges



Iron Pipe Floor Flanges—4-Inch



Simplex No. 3

Boiler Stands

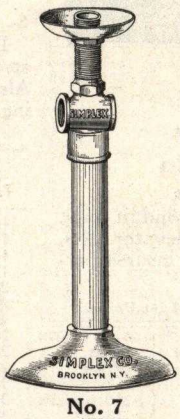
Made of malleable iron only.

Either type furnished with or without supporting arms.

Simplex No. 3 has brass seat, brass compression top furnished with ¾ or 1-inch unions.

Lowcell Type, tapped ¾-inch through center or ¾ x 1-inch through center.

Furnished with ¾-inch union if desired.



No. 7 Lowcell Type

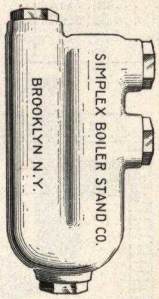
Bronze Hot Water Generators

No. 1—30 gallons.

No. 2—40 to 52 gallons.

No. 3—66 to 100 gallons.

Tested 150 Pounds Water Pressure.



WADE IRON SANITARY MFG. CO. CHICAGO, ILL.

General Offices and Factory—1717-1721 South Canal Street

Products

Backwater Valve Drainage Fittings; Water Jacket Grease Traps and Interceptors; Cast Iron Grease, Catch, Garage, Steam, Cleanout, Bilge Pump, Ejector Pump, and Floor Drain Basins; Floor Drains; Roof Drains; Shower Drains; Manhole Covers, and Drainage Specialties.

Service

Our Engineering Department is always glad to furnish detailed information regarding any of the specialties of our manufacture as to design or application. We are equipped to work out designs and full cost of any new sanitary equipment that may be required for special construction. Our new Catalog will be sent on request.

Wade "Accessible" Backwater Valves



Fig. D-101

Durable and dependable, this valve will give permanent flood protection. Exclusive WADE Flusher connection provides thorough cleaning with water under pressure. Adapted to receive any number of extensions to make sewer line accessible at any depth. Threaded cleanout furnished when specified.

Sizes, Weights and List Prices

Size of Valve Inches	Weight Pounds	List Price Fig. D-101	List Price with Extension 12 Inches Deep Fig. D-102
2	30	$10.00	$13.00
3	35	12.00	15.00
4	55	15.00	19.00
6	90	20.00	26.00
8	125	30.00	38.00
9	135	30.00	38.00
10	240	50.00	58.00
12	350	90.00	98.00
24	1450	275.00	.....



Fig. D-102

Wade "Accessible" Lock-Out Valve

Insures positive protection from backwater under all conditions. Equipped with automatic and manually operated valves. Flusher connection permits rapid cleansing of both valves.

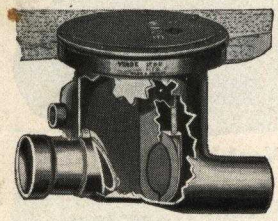


Fig. D-106

Sizes, Weights and List Prices

Size Inches	Weight Pounds	List Price
4.....	300	$ 75.00
6.....	330	85.00
8.....	500	105.00

Wade "Accessible" Floor Drain

With Backwater Valve

Recommended where trap is required in basements, etc. Furnished with various style strainer tops, and also without valve.

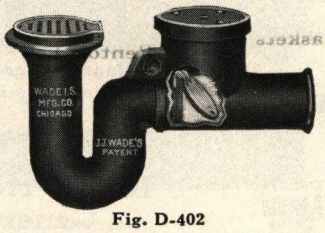


Fig. D-402

Sizes, Weights and List Prices

Size Inches	Weight Pounds	List Price
2.....	25	$13.00
4.....	90	18.00
6.....	125	28.00

Wade "Accessible" Conduit Drain

With Backwater Valve

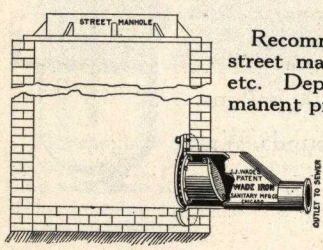


Fig. D-130

Recommended for electric conduit pits, street manholes, meter and elevator pits, etc. Dependable valve action insures permanent protection.

Sizes, Weights and List Prices

Size Inches	Weight Pounds	List Price
4-Small	20	$10.00
4-Large	40	12.00
6-Large	65	16.00

Wade "Accessible" Cast Iron Catch and Gravel Basins



Fig. D-310

Designed as interceptors of grease, gravel, oil, sediment, and all other wastes to prevent the clogging of sewer lines. WADE cast iron basins should be used in preference to brick or concrete, being more sanitary, and not subject to the disintegrating effects of acids resulting from decomposing sewage. Furnished with or without trap with any number of hubs, and with many types of covers. Can also be used as floor drains in connection with our triple separating basins.

Sizes and List Prices

Size Inches	List Price	Size Inches	List Price	Size Inches	List Price
16x20	$35.00	24x24	$60.00	30x60	$180.00
16x24	40.00	24x30	70.00	30x72	205.00
16x30	45.00	24x36	80.00	36x36	175.00
18x24	42.00	24x42	90.00	36x42	190.00
18x30	48.00	24x48	100.00	36x48	200.00
18x36	56.00	30x30	110.00	36x60	220.00
20x24	56.00	30x36	130.00	36x72	240.00
20x30	62.00	30x48	160.00	36x84	265.00
20x36	68.00	30x60	180.00	36x96	285.00

Wade "Accessible" Cast Iron Sump Basins

Made in all possible sizes for every type of bilge and sewage ejector, with any number of hubs placed where desired. Flange drilled for all pump covers. Special basins made for special pumps.

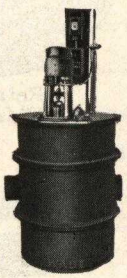


Fig. D-350

List Price Fig. D-350 Sump Basins Only

Size Inches	List Price	Size Inches	List Price
18x24	$35.00	42x48	$215.00
18x42	53.00	42x60	240.00
20x30	55.00	42x72	265.00
20x48	70.00	42x84	300.00
24x30	70.00	48x48	230.00
24x36	75.00	48x60	285.00
24x48	85.00	48x72	335.00
30x36	95.00	48x84	385.00
30x48	125.00	48x96	405.00
30x60	155.00	60x60	400.00
30x72	185.00	60x72	480.00
36x48	145.00	60x84	565.00
36x60	170.00	60x96	585.00
36x72	190.00	60x108	625.00
36x84	220.00	60x120	665.00

Wade "Accessible" Cast Iron Steam Blow-Off Basins

Designed to protect sewers from the sudden blow-off of live steam. Made for use with boilers of any horsepower or pressure. Also made with tandem connections to act as condensing and cooling units.

List Price Fig. D-340 Steam Basins

Size Inches	List Price	Size Inches	List Price
16x20	$ 40.00	36x42	$175.00
16x24	44.00	36x48	190.00
18x24	46.00	36x60	220.00
18x36	58.00	36x72	280.00
20x30	65.00	42x42	225.00
20x36	75.00	42x48	240.00
20x42	80.00	42x60	285.00
24x30	78.00	42x72	315.00
24x36	85.00	48x48	300.00
24x42	95.00	48x60	350.00
30x36	125.00	48x72	400.00
30x42	135.00	48x84	450.00
30x48	150.00	60x60	650.00
30x60	175.00	60x72	700.00



Fig. D-340

Wade "Accessible" Water Cooled Grease Trap

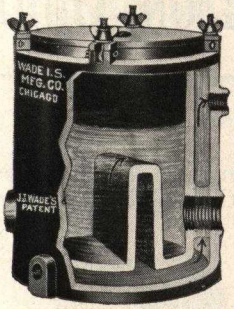
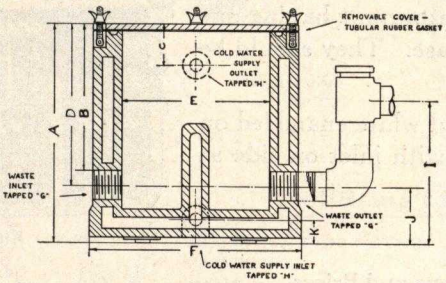


Fig. D-220

Separating grease from hot waste water by sudden chilling, the WADE Water Cooled Interceptor recovers more grease per gallon than any other type. Cold water is constantly circulating around the entire interior, walls, bottom, and central partition, utilizing maximum cooling area. The water jacket is cast integral with the WADE Interceptor and must not be confused with small sectional jackets which occupy but fractional area of trap.

Every particle of waste water is forced against cooling surfaces of WADE Trap before entering waste pipes, causing great loss of heat with consequent precipitation of grease. Interceptors not cooled become as hot as incoming waste water, thus freely passing grease in solution into waste pipes where it later congeals.

Chemical analysis of waste water at an initial temperature of 160 degrees F. showed grease content of less than 1% after passing through WADE Interceptor.



Dimensions—In Inches

Size	A	B	C	D	E	F	G	H	I	J	K
Small—No. 1	15	9¼	2¾	10¼	10	13	2	¾	10	4½	2⅜
Government—No. 2	17	11¾	2¾	12¾	12½	16	2	¾	12	4½	2⅜
Large—No. 3	23	17	3	18	16	20	3–4	1¼	16	6½	3¼
Extra Large—No. 4	28	19½	3½	20½	20	25	3–4	1¼	18	6½	3¾

Size	Specifications: Grease in Lbs.	Gallons Water per Hour	Weight Pounds	List Price: Enamel Painted	Enameled In or Out	Enameled In and Out
Small—No. 1	25	75–100	135	$ 40.00	$50.00	$60.00
Gov't—No. 2	40	150–250	250	65.00	80.00	90.00
Large—No. 3	80	250–350	560	120.00	On Application	
Ex. Large—No. 4	115	550–650	825	145.00	On Application	

Wade "Accessible" All-Purpose Interceptor



Fig. D-210

For use where water cooled interceptors are not required, this trap is an inexpensive, efficient grease collector. Fig. D-200 is particularly adaptable for use under kitchen sinks, in small apartments, etc. Fig. D-210 is recommended for general hospital purposes, optical and dental laboratories, and as a plaster and lint interceptor. Cover is easily removed for cleaning. Larger sizes furnished on special order. If desired, this trap can be fitted with exposed outside seal in place of regular interior type.

Sizes, Weights and List Prices

Fig. D-200 Size—I. D. Inches	Weight Pounds	List Price	Fig. D-210 Size—I. D. Inches	Weight Pounds	List Price
6x10	25	$10.00	14x14	110	$20.00
8x10	35	12.00	14x18	125	24.00
10x12	55	15.00	18x18	250	35.00

Wade "Accessible" Cast Iron Basin, Street and Manhole Covers

Wade Covers are made in all sizes for all loads, including types for street and gutter use. Lids are furnished bolted, loose, solid, perforated, grated, round and square. Special covers made upon order. Catalogue shows one hundred types.

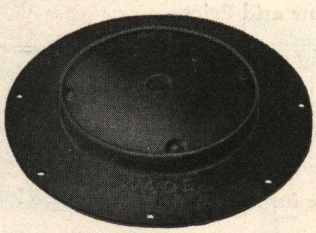


Fig. D-510

Wade "Accessible" Roof Drains

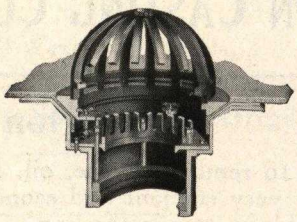
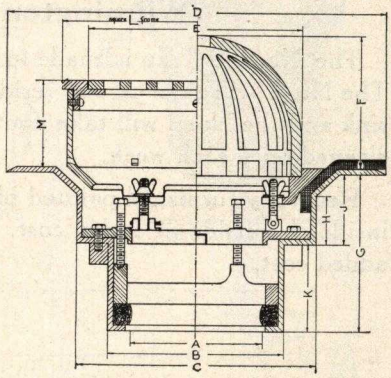


Fig. D-450

The new improved WADE Roof Drain requires no caulking, no threading, and no separate expansion joint. The connection is made by slipping the drain over the leader pipe and screwing down three non-corrosive bolts, causing the gasket to expand equally and firmly around pipe. Any expansion or contraction of roof deck is absorbed by the graphited asbestos gasket. Roofing material is held securely by the adjustable clamp ring, thus eliminating cost of copper flashing, caulking, etc. Design of drain prevents pools from forming at outlet, and permits full flow area of leader at times of emergency roof capacity.

Made in all sizes for every type of roof deck. Made in small sizes for narrow valleys and limited roof areas. Equipped with flat grate and square frame for use on quarry tile promenade decks and set-backs.



Dimensions and List Prices—Standard Drain—Fig. D-450

Size	A	B	C	D	E	F	G	H	J	K	L	M	Wt.	Price
3	3	5¾	11½	18¼	11⅛	6½	7½	2½	3¼	4¼	13¼		65	$10.00
4	4	7	11½	18¼	11⅛	6½	7½	2½	3¼	4¼	13¼	1½	65	12.00
5	5	8	11½	18¼	11⅛	6½	7½	2½	3¼	4¼	13¼	to	67	14.00
6	6	9	11½	18¼	11⅛	6½	7½	2½	3¼	4¼	13¼	4"	71	15.00
8	8	11⅛	13	18¼	11⅛	6½	7½	2½	3¼	4¼	14⅛		80	18.00

Dimensions and List Prices—Small Size Drain—Fig. D-456

Size	A	B	C	D	E	F	G	H	J	K	L	M	Wt.	Price
2	2	4¾	8⅜	12	8½	5	7½	2½	3¼	4¼	10¼		40	$ 6.00
3	3	5¾	8⅜	12	8½	5	7½	2½	3¼	4¼	10¼	1½	40	8.00
4	4	6¾	8⅜	12	8½	5	7½	2½	3¼	4¼	10¼	to	40	10.00
5	5	8⅛	10¼	13¾	9¼	6½	7½	2½	3¼	4¼	11½	4"	60	12.00
6	6	9	11½	13¾	9¼	6½	7½	2½	3¼	4¼	11½		65	14.00

All Dimensions—In Inches



Fig. D-380

Wade "Accessible" Floor Drain Basins

Recommended for all types of floors in laundries, factories, garages, service stations, packing plants, industrial plants, etc., wherever wastes accumulate upon floors to be washed into sewers. Ordinary small floor drains do not intercept sediment but carry it off with the floor wash water where it later clogs sewer lines. Removable bucket can be furnished with this drain at small extra cost.

Sizes, Weights and List Prices

Size—I. D. Inches	Weight Pounds	List Price Fig. D-380	List Price Fig. D-388
6x10	40	$18.00	$22.00
8x10	55	21.00	25.00
10x12	90	24.00	30.00
14x14	145	27.00	37.00
14x17	180	33.00	43.00
18x18	285	45.00	55.00

This type of drain basin is fitted with an exposed seal where such is required. An easily removable large capacity bucket can be suspended inside at small extra cost. Grated or perforated strainers are extra heavy and will support all loads.



Fig. D-388

THE WILMINGTON CASTING CO. WILMINGTON, OHIO

Wilmington Grease Traps

This line of Traps is made to remove grease, oil, fatty substance, lint or any foreign matter which has a tendency to float. They are very efficient and economical in that they eliminate obstruction in the drainage line, due to the collection of this matter in the line.

Wilmington No. 110 Grease Traps

The No. 110 Trap is made in two sizes and are known as No. 1 and No. 2. The No. 1 will take care of residences and the average restaurant having one sink and the No. 2 will take a much larger volume of grease. They should be cleaned once each week.

Regularly furnished painted black, but can be furnished white enameled on inside or outside at added cost. Also can be furnished with inlet on side at added cost.

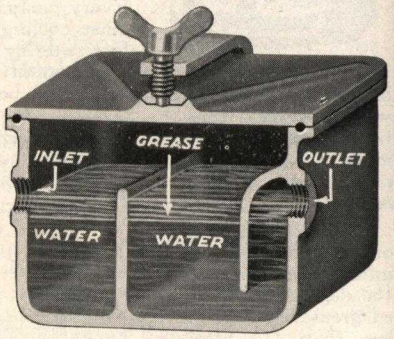


Fig. 110

Inside Dimensions and Prices

Fig. No. and Size	Inlet Inches	Outlet Inches	Width Inches	Length Inches	Depth Inches	Weight Pounds	Price
110–1	2	2	8	10	9	52	$12.50
110–2	2	2	12	14	12	125	25.00

Note—No. 110–1 Trap is furnished for screw pipe only and the 110–2 can be furnished with hubs for caulking at the same price if so specified.

Wilmington No. 240 Water-Cooled Grease Traps

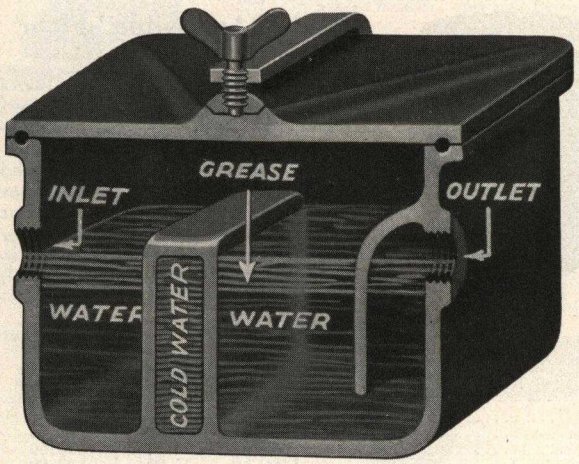


Fig. 240

This Trap is similar to the No. 110 except it has a water box to which a cold water line is attached, thus keeping the trap cool and helping to congeal a larger volume of grease.

The water box and trap are cast in one piece and eliminates all chances for leakage due to gaskets or connections where a water box is otherwise attached.

Inside Dimensions and Prices

Fig. No. and Size	Inlet Inches	Outlet Inches	Width Inches	Length Inches	Depth Inches	Weight Pounds	Price
240–1	2	2	12	14	12	135	$40.00

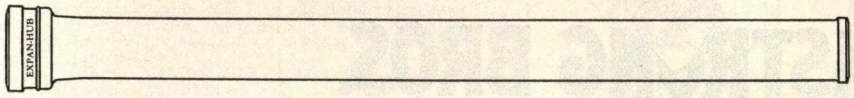
Note—No. 240 Trap furnished regularly for screw pipe, but can be furnished with 2-inch hubs for caulking if specified, at the same price.

STRINGER BROS. CO., INC. — CHICAGO, ILL.

General Offices—1100 West 38th Street

Warehouses: Gadsden, Ala.—Chicago, Ill. — Factories—Gadsden, Ala.

Stringer Soil Pipe (Expan-Hub), Staple Soil Pipe Fittings and Specialties



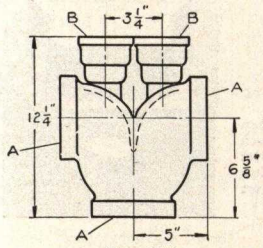


Fig. 355

Fittings for Screw Pipe

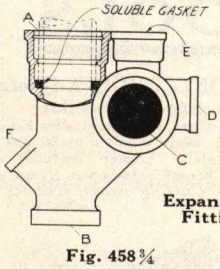


Fig. 458 3/4

Expansion Fitting

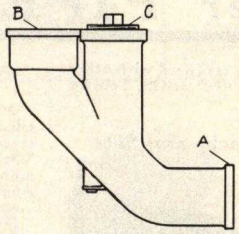


Fig. 713

Cleanout Fittings

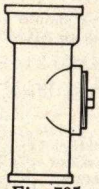
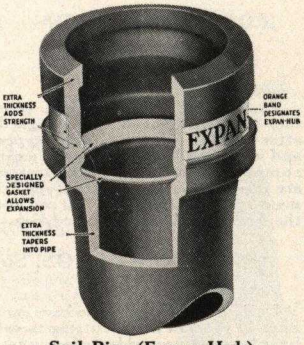


Fig. 705



Soil-Pipe (Expan-Hub) furnished with Special Gasket for Expansion

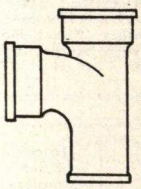


Fig. 1030 Staple Fittings

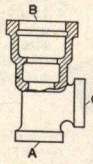


Fig. 545

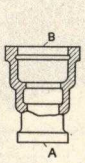


Fig. 569

Hub Drainage Fittings

A Fitting for Every Job

Staple Soil Pipe Fittings
Expansion "
Battery "
Base Stack "
Cleanout "
Special " For Soil Pipe Stacks
" " Screw " "
Hub Drainage "
Boiler Stands and Ice Box Drains
Closet Bends and Drum Traps

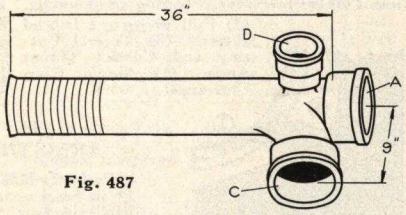


Fig. 487

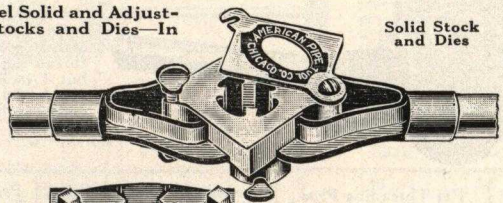
Battery Fittings

Fittings illustrated above are only a few of the hundreds of items manufactured by us
Full information furnished on request—Write us—Stringer Bros. Co., Inc., 1100 West 38th Street, Chicago, Ill.

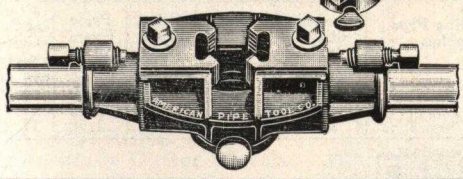
AMERICAN PIPE TOOL COMPANY — CHICAGO, ILLINOIS

Harrison Street and Kolmar Avenue

Amexcel Solid and Adjustable Stocks and Dies—In Sets



Solid Stock and Dies

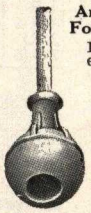


Adjustable Stock and Die

Solid Size No.	Wt. Lbs.	List Price	Description	Adjustable Size No.	Wt. Lbs.	List Price
1	10	$7.50	Stock Complete with 3 dies and guides	2	10	$8.50
1	12	9.00	Stock Complete with 4 dies and guides	2	11	10.25
1	14	10.50	Stock Complete with 5 dies and guides	2	12	12.00
1	16	12.00	Stock Complete with 6 dies and guides	2	13	14.00
2	21	13.50	Stock Complete with 2 dies and guides	3	23	16.00
2	24	14.50	Stock Complete with 3 dies and guides	3	27	18.00
2	27	17.00	Stock Complete with 4 dies and guides	3	31	21.00

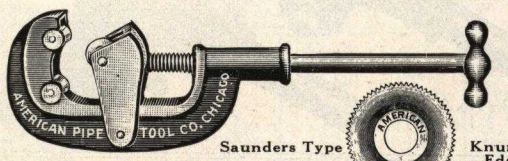


American Bit Brace Pipe Reamer
List price, ea.... $1.40

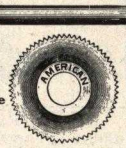


American Force Cup
List price, ea... $4.00

Complete catalog and discount sheet sent on request.



Saunders Type



Knurled Edge Cutter Wheel

American Pipe Cutters

No.	Capacity Inches	Wt. Lbs.	Price Complete
Crown Type			
1	1/8 to 1	..	$ 4.00
2	1/2 to 2	..	6.00
3	2 to 4	..	19.00
Saunders Type			
1	1/8 to 1	3	$ 3.00
2	1 to 2	6	4.50
3	1 1/2 to 4	12	11.00
4	2 1/2 to 4	15	18.00
5	4 to 6	23	28.00

No.	Capacity Inches	Wt. Lbs.	Price Complete
Barnes Type			
1	1/8 to 1/2	3	$ 4.50
2	1/2 to 2	4 1/2	6.00
3	1 1/2 to 3	8 1/2	10.00
4	2 1/2 to 4	12 1/2	20.00
5	4 to 6	20	30.00
6	6 to 8	25	40.00

American Cutter Wheels

American Knurled and plain cutter wheels can be furnished for all types of pipe cutters, prices upon application.

"American" Hinged Pipe Vises

(Not Illustrated) List Prices

No. 00 Vise—Cap. 1/8 to 1 1/4 ins.. $2.50
No. 0 Vise—Cap. 1/8 to 2 ins.... 4.25
No. 1 Vise—Cap. 1/8 to 2 1/2 ins.. 5.00
No. 2 Vise—Cap. 1/8 to 3 1/2 ins.. 7.50
No. 3 Vise—Cap. 1/2 to 4 1/2 ins.. 11.00
No. 4 Vise—Cap. 1/2 to 6 ins.... 23.50

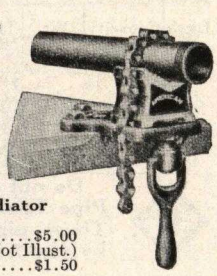
"American" Improved Portable Pipe Vise Stands



Stand complete, no legs, no vise.... $12.00
Stand complete, with legs, no vise 13.50
Stand complete, no legs with vise... 15.00
Stand complete, with legs, and vise 17.00

"American" Chain Pipe Vise
List Prices, Vises and Extra Parts

No.	For Pipe Sizes	Wt. Each Lbs.	Chain With Screw	Screw	Hdle. With Nut	Nut	Vise Complete
1	1/8 to 2	4	$2.50	$0.80	$2.20	$1.40	$7.00
2	1/4 to 4	10	4.80	1.40	4.20	2.70	15.00
4	1/4 to 8	32	12.00	2.50	7.00	4.00	36.00



American Union Valve or Nipple Wrench
(Not Illustrated) List Price, Each $1.50

American Closet Spud Wrench
(Not Illustrated) List price, Ea..... $1.00

American Ratchet Handle for Nipple or Radiator Spud Wrenches (Not Illustrated)
List Price, each $5.00

American Holding Inner Closet Spud Wrench (Not Illust.)
List price, each $1.50



"American" Ratchet Pipe Reamer

No. 1—Capacity 1/8 to 1 1/4 inches. List price, $5.00.
No. 2—Capacity 1/4 to 3 inches. List price $7.50.

"American" Clamp Pipe Vises
(Not Illustrated)

No. 00 Vise—Capacity 1/8 to 2 inches. List price, ea..... $5.00
No. 11 Vise—Capacity 1/8 to 2 1/2 inches. List price ea..... $6.50

ARMSTRONG BROS. TOOL CO. "The Tool Holder People" CHICAGO, U.S.A.

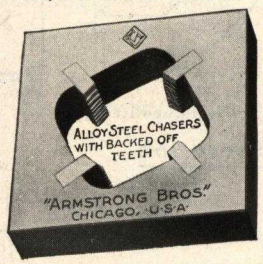
323 N. Francisco Ave., CHICAGO, U. S. A.
London Branch: ARMSTRONG BROS. TOOL CO., LTD.

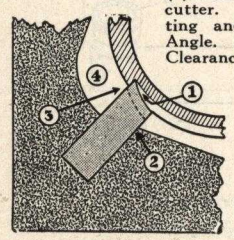
ARMSTRONG BROS.
Better PIPE TOOLS

Each ARMSTRONG BROS. pipe tool is an **improved** tool designed after exhaustive tests of other types and makes. They comprise the most complete line of hand pipe tools made; are strictly speaking "Better Pipe Tools" and should not be confused with other makes of similar name. You can always tell an ARMSTRONG BROS. Tool by the Arm-and-Hammer Trade Mark.

ARMSTRONG BROS. Solid Pipe Dies, Stocks and Sets

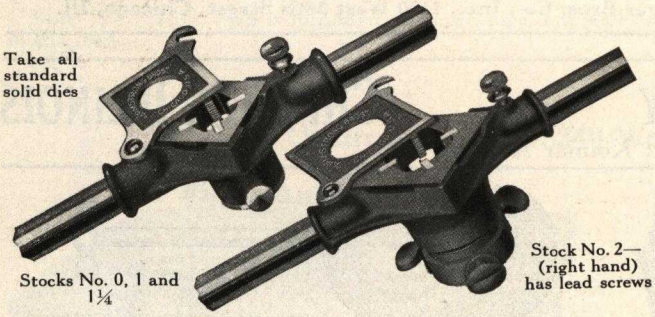
Designed by experts who have specialized for over 40 years in metal-cutting tools, these dies have many improved features, cut easier, faster and cut smoother threads. Chasers are of Vanadian Tool Steel—hold their sharpness; are cast-welded **solidly** into die bodies. Special design features include: (1) Clearance from Cutting Points—no "drag," tearing or jamming. (2) Full support behind cutter. (3) Correct Cutting and Correct Throat Angle. (4) Ample Chip Clearance.





ARMSTRONG BROS. Stocks

Perfectly balanced with smooth bodies that fit in hand comfortably. Bodies of Certified Malleable Iron, black lacquered; accurately machined inside and out. Handles burnished, dull nickeled.



Take all standard solid dies

Stocks No. 0, 1 and 1¼

Stock No. 2—(right hand) has lead screws

Set No.	Number of Dies in Set	For Threading Pipe Size Inches	Dimensions of Dies Inches	Price Stock Without Dies or Guides	Price Extra Dies Each	Price of Set Complete
0	Four	⅛ to ½	2 x2 x½	$3.00	$1.40	$ 8.00
1	Five	¼ to 1	2½x2½x¾	3.50	1.60	10.50
1-6	Six	⅛ to 1	2½x2½x¾	3.50	1.60	12.00
1-5	Five	⅛ to ¾	2½x2½x¾	3.50	1.60	10.50
1-3	Three	½ to 1	2½x2½x¾	3.50	1.60	7.50
1½	Three	¾ to 1¼	3 x3 x¾	4.00	2.00	9.50
1½-6	Six	¼ to 1¼	3 x3 x¾	4.00	2.00	15.50
1½-4	Four	½ to 1¼	3 x3 x¾	4.00	2.00	11.50
2	Three	1¼ to 2	4 x4 x⅞	8.50	2.50	14.50
2-4	Four	1 to 2	4 x4 x⅞	8.50	2.50	17.00
2-5	Five	¾ to 2	4 x4 x⅞	8.50	2.50	19.50
2-6	Six	½ to 2	4 x4 x⅞	8.50	2.50	22.00

ARMSTRONG BROS. Triplex Stock

Handy where range of sizes is limited to three with none larger than 1 inch. Eliminates need for carrying and changing of dies and bushings. Come equipped with dies—½-inch, ¾-inch and 1-inch unless otherwise specified.

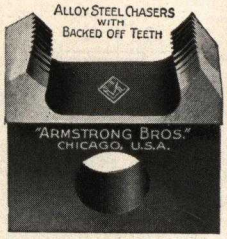
Triplex Set No.	Dimensions of Dies 2½x2½x¾ Inch	Wt. Complete Lbs.	Stock Only Without Dies	Price Each Extra Dies	Price Complete
1-T	Triplex Stock with three Dies	11½	$7.50	$1.60	$12.25



Take all standard solid dies

ARMSTRONG BROS. Adjustable Dies, Stocks and Sets

Made of Vanadium Tool Steel, dies take a keen edge and hold it; require less muscle, cut smooth threads, cut faster. Design features include: "Backed-off" Chasers—clearance from cutting points. Correct Cutting Angle, Correct Throat Angle.





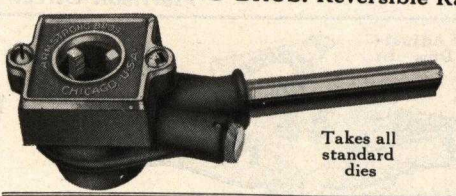
Take all standard adjustable dies

Stocks are accurately machined, inside and out. Bodies (Certified Malleable Iron) are free from sharp ridges. Black lacquered with handles dull nickeled.

Set No.	Pairs of Dies in Set	For Threading Pipe Size Inches	Price Stock Without Dies or Guides	Price Extra Dies Pair	Price of Set Complete
1-A	Four	⅛ to ½	$3.25	$1.60	$9.00
2-A	Five	¼ to 1	4.00	2.00	12.00
2-A-6	Six	⅛ to 1	4.00	2.00	14.00
2-A-5	Five	⅛ to ¾	4.00	2.00	12.00
2½-A	Two*	½ to 1¼	5.25	3.50	14.00
2½-A-6	Four*	¼ to 1¼	5.25	3.50	20.00
3-A	Three	1¼ to 2	7.00	4.50	18.00
3-A-4	Four	1 to 2	7.00	4.50	21.00
3-A-5	Five	¾ to 2	7.00	4.50	24.00
3-A-6	Six	½ to 2	7.00	4.50	27.00

*½, ¾, 1 and 1¼-inch No. 2½-A Sets are Double End Dies. The ¼ and ⅜ are Single End; price $2.50 per pair.

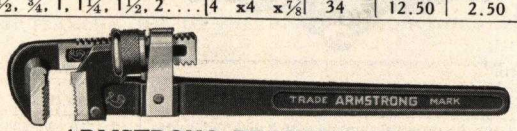
ARMSTRONG BROS. Reversible Ratchet Stock



Takes all standard dies

For tight places. Instantly reversible. Will thread pipe projecting but 1 inch. Takes all standard dies. Dies and guides included.

Set No.	For Threading Pipe Size—Inches	Dimensions of Dies Inches	Weight of Set Pounds	Price Stock Only	Price Extra Dies	Price of Set Complete
1-R	⅜, ½, ¾, 1	2½x2½x¾	8¾	$ 7.50	$1.60	$15.00
1-R-6	⅛, ¼, ⅜, ½, ¾, 1	2½x2½x¾	11¼	7.50	1.60	19.00
2-R	1, 1¼, 1½, 2	4 x4 x⅞	27	12.50	2.50	24.75
2-R-6	½, ¾, 1, 1¼, 1½, 2	4 x4 x⅞	34	12.50	2.50	31.25



ARMSTRONG BROS. Pipe Wrench
Patented Design, All Steel

Drop forged of steel and heat treated, has no frame. The Patented ball and socket nut gives increased flexibility and great strength. Side pull strain is taken up by two solid forged steel lugs which are reinforced or tied together by the recessed nut. Novel spring action insures proper gripping. Replaceable lower jaw.

Lgth In.	Capacity Inches	Wt. Lbs.	Handles	Yoke	Jaw or Yoke Pins	Nut	Spring Assembly	Insert Jaw	Movable Jaw	Complete Wrench
8	⅛ to ¾	¾	$1.25	$0.15	$0.03	$0.25	$0.05	$0.55	$0.70	$ 2.20
10	⅛ to 1	1½	1.75	.20	.04	.30	.06	.65	1.10	2.85
14	¼ to 1½	2¾	2.45	.35	.04	.45	.07	.85	1.50	3.85
18	¼ to 2	4½	3.50	.55	.04	.60	.08	.95	2.15	5.50
24	¼ to 2½	7½	5.65	.80	.04	.80	.10	1.10	3.50	8.50
36	¼ to 3½	15¼	11.50	1.10	.05	1.40	.12	1.50	5.70	15.00

Do not confuse ARMSTRONG BROS. Pipe Tools with those of similar name. These pipe tools can be distinguished by the Arm-and-Hammer Trade Mark.

ARMSTRONG BROS. Pipe Cutters



HEAVY DUTY

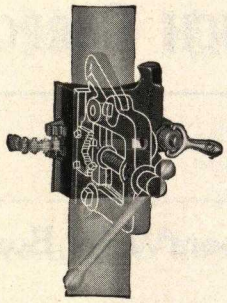
Improved design—end thrust absorbed by hardened steel nut. Bodies, certified malleable iron; Pins and Rollers Hardened Tool Steel. Feed Rod knurled, hardened at point, bears on inserted hardened steel block embedded in swinging arm. Large sizes tapped for pipe handle.

Comes with an ARMSTRONG BROS. Knife Blade Cutter Wheel. (See description below).

No.	Capacity Pipe, Inches	Weight Pounds	Price Pins Each	Price Rollers Each	Price Wheels Each	Price Complete Each
1-A	⅛ to 1¼	4	$0.10	$0.25	$0.70	$4.00
2-A	¾ to 2	7¼	.15	.40	.80	6.00
3-A	1½ to 3	12¾	.15	.40	.80	10.50
4-A	2½ to 4	15½	.20	.60	1.10	19.00



Look for the Arm - and - Hammer Trade Mark. It guarantees a better pipe tool—an improved tool.

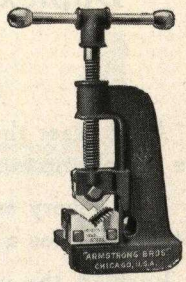


ARMSTRONG BROS. Pipe Vise Saddle

(Pat. App. For)

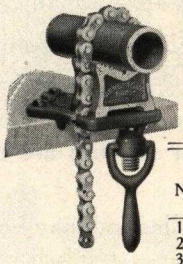
A firm base for standard hinged, heavy duty and chain vises that attaches instantly to any round or square post. Complete with pipe bender.....$12.00

ARMSTRONG BROS. Open Side Vise



Within its range (⅛-inch to 2 inches) combines: Strength, quick action, convenience and solid gripping. Price.....$6.00

ARMSTRONG BROS. Patented Chain Vise



Light, compact, large capacity and strong. Goes into tool bag. One-piece, drop-forged jaws give full support to smallest pipe. Drop forged base and handle. Proof-tested chain.

No.	Holds Pipe Size Inches	Wt. Lbs.	Jaws Pair	Chain with Screw	Screw Only	Handle with Nut	Nut Only	Price Each Complete
1-C	⅛ to 2	4½	$ 3.00	$ 2.50	$0.80	$2.20	$1.40	$ 7.00
2-C	¼ to 4	12½	7.00	4.80	1.40	4.20	2.70	15.00
3-C	¼ to 6	18	12.00	9.00	2.50	7.00	4.00	27.00
4-C	¼ to 8	30	18.00	12.00	2.50	7.00	4.00	36.00

ARMSTRONG BROS. Standard (Saunders Type) Pipe Cutters

The Body, Handle and Cutter Holder are certified malleable iron finished in black lacquer. Pins and Rollers are Tool Steel carefully machined and hardened. The Cutter Wheel is thin "knife blade" shape, made from a special Alloy Tool Steel, carefully hardened and heat treated to insure maximum strength and efficiency.

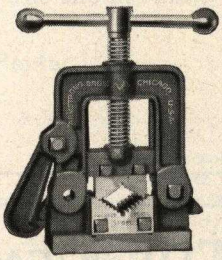


Parts are interchangeable with similar parts of Saunders Type Cutters of other makes.

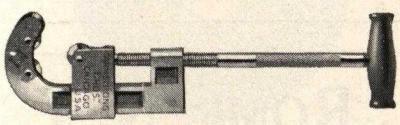
No.	Capacity Pipe, Inches	Weight Pounds	Price Pins Each	Price Rollers Each	Price Wheels Each	Price Complete Each
1-S	⅛ to 1	3	$0.10	$0.24	$0.50	$3.00
2-S	1 to 2	6	.10	.32	.60	4.50
3-S	2 to 3	11½	.15	.50	1.10	11.00
4-S	2½ to 4	15	.15	.50	1.10	18.00
5-S	4 to 6	23	.15	.50	1.10	28.00

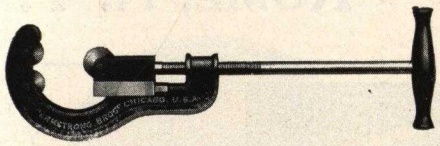
ARMSTRONG BROS. Standard Pipe Vise

Unbreakable Drop Forged Hook. Tool Steel Jaws, milled, hardened, tempered and tested.



No.	Holds Pipe Inches	Weight Pounds	Extra Jaws, Set of Three	Price Each Complete
7000	⅛ to 1¼	3	$1.20	$2.50
700	⅛ to 1½	5	1.40	3.60
70	⅛ to 2	7½	1.75	4.25
71	⅛ to 2½	10	1.75	5.00
72	⅛ to 3½	16	2.50	7.50
73	⅛ to 4½	25	3.50	11.00
74	⅛ to 6	49	6.00	23.50

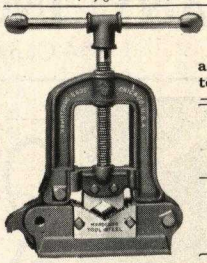




ARMSTRONG BROS. "Barnes Type" 3-Wheel Pipe Cutters

Handy for tight places. 3-wheel design permits cutting of pipe with only short swing. Equipped with 3 ARMSTRONG BROS. Knife Blade Cutter Wheels.

Cutter No.	Capacity Pipe, Inches	Weight Pounds	Price Pins Each	Price Wheels Each	Price Complete Each
1-B	⅛ to 1	3	$0.10	$0.50	$4.50
2-B	½ to 2	4	.10	.60	6.00
3-B	1½ to 3	8	.10	.80	10.00
4-B	2½ to 4	12	.20	1.00	20.00
5-B	4 to 6	20	.20	1.10	30.00



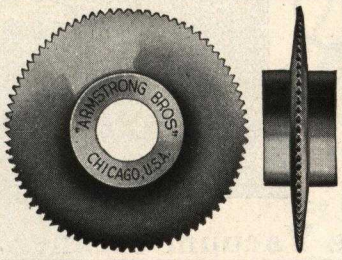
ARMSTRONG BROS. Heavy Duty Vise

Carefully designed for use where exceptional strength and stiffness are required. Jaws of Tool Steel with milled teeth, heat treated and oil tempered.

No.	Holds Pipe Size—Inches	Weight Each Pounds	Extra Jaws Set of Three	Price Each Complete
21	⅛ to 2½	16	$1.75	$ 8.00
22	⅛ to 3½	29	2.50	14.00
23	¼ to 5	42	3.50	20.00
24	½ to 7	76	8.00	35.00

ARMSTRONG BROS. Knife Blade Cutter Wheels

Make pipe cutting faster, easier. Have thin penetrating blades that actually **Cut.** Special Alloy Tool Steel, accurately machined, heat treated, hardened and oil tempered. Cadmium plated to prevent rusting. Fit all standard pipe cutters.



Type of Pipe Cutter	No. 1 Price Each Knurled or Smooth Edge	No. 2 Price Each Knurled or Smooth Edge	No. 3 Price Each Knurled or Smooth Edge	No. 4 Price Each Knurled or Smooth Edge	No. 5 Price Each Knurled or Smooth Edge
Saunders	$0.50	$0.60	$1.10	$1.10	$1.10
Barnes	.50	.60	.80	1.00	1.10
Nye	.70	.80	.....	.....	.....
Trimo	.60	.60	.90	.....	.....
Armstrong Bros (Heavy Duty)	.70	.80	.80	1.10	.....
Armstrong Bros. 3-inch Wheel.	.50	.60	.80	1.00	1.10
Armstrong Bros. Standard	.50	.60	1.10	1.10	1.10

ARMSTRONG BROS. Chain Pipe Wrenches



Improved design increases strength and ease of operation. Handles drop forged, high carbon steel—stiffness and spring. Jaws forged from special steel, treated, hardened and tested for toughness. Chains proof tested to two-thirds specified strength.



Reversible Jaw Tongs. "2 tools for the price of 1."

Regular Tongs No.	10	11	12	13	13½	14	15	15½	16
Reversible Jaw Tongs No.	30	31	32	33	33½	34	35	.....	.....
Price:									
Complete Wrench	$5.00	$7.00	$10.00	$14.00	$18.00	$22.00	$36.00	$60.00	$80.00
Capacity:									
Size Pipe	⅛–¾	⅛–1½	¼–2½	¾–4	1–6	1½–8	2–12	4–16	4–18
Extreme Length, Ins.	14	20	27	37	44	51	65	78	87
Weight, Pounds	1¾	6	10	16½	23	32	53	95	137
Flat Link Chain:									
Length, Inches	9⅛	13⅛	17⅛	22½	32	40½	55½	70	74½
Breaking Strain, Lbs.	3,600	6,700	9,800	12,500	14,300	15,700	21,800	30,000	40,000
Cable Chain:									
Length, Inches	9¾	14⅛	18	27	33½	42	57	72	76
Breaking Strain, Lbs.	1,200	4,000	6,000	10,500	12,500	15,000	19,000	28,000	40,000
Prices of Ext. Parts:									
Extra Chain	$1.50	$2.00	$3.00	$5.00	$7.00	$ 9.00	$15.00	$30.00	$40.00
Extra Jaws, Pair	2.00	3.50	5.50	8.00	9.50	11.00	15.00	24.00	32.00
Extra Bolt and Nut, per Set	.28	.36	.46	.60	.70	.90	1.30	1.75	2.50

DUPLEX WRENCH CORPORATION — JAMESTOWN, N. Y.

Duplex Plumbers' Tool Boxes and Cases

Duplex Master Case

A tool case that will meet with the approval of every mechanic, such as the electrician, plumber, steam-fitter, auto mechanic, repairman, etc.

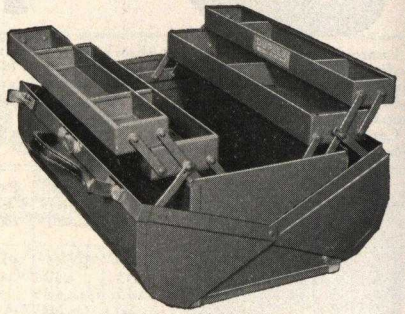
It is a very substantial, well built tool case, is made of Auto Body Stock and has a moss green dull finish. Will stand up under hard use.

Each of the upper trays have three compartments providing ample space for small items. All the tools and supplies are easily accessible when the case is open.

It is equipped with lock and leather handles and may be securely locked when not in use.

Made in one size—19 inches long; 10 inches wide; 12 inches high.

Prices on application.



Open View

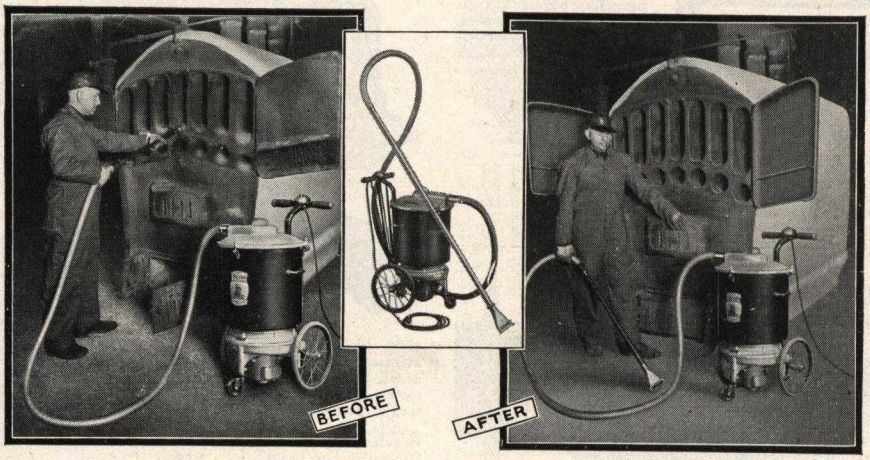


Closed View
No. 1019

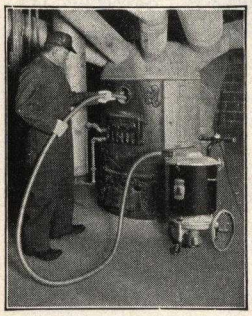
THE KENT COMPANY, INC. — ROME, N. Y.

134 Canal Street

Simple in Construction



Dependable in Operation



A clean heater, both in side and out, will insure your customers a full measure of satisfaction.

The Kent Furnace Vacuum Cleaner

Removes all dust, soot and ash from all types of furnaces and boilers. Does the job thoroughly, in a short space of time. Trouble-proof, easily operated, easily carried or rolled from place to place. Stands long, hard use. Operated from any electric light socket.

Furnace Vacuum-Cleaning Increases Profits

The profitable nature of Furnace Cleaning and the attractive work it uncovers makes this a worthwhile item and should be part of your standard equipment.

Information gladly furnished on request.



A one man machine, weighing 65 pounds.

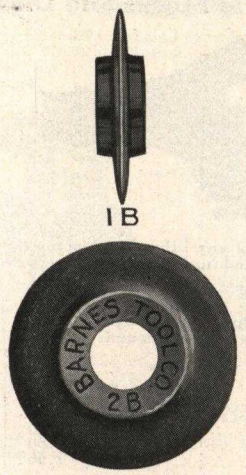
THE BARNES TOOL COMPANY NEW HAVEN, CONN.

Representatives

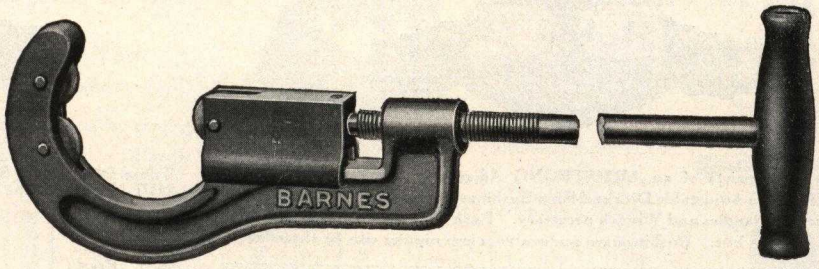
Chicago, Ill., J. H. Lehnen Co., 1510 So. Newberry Ave.
Chattanooga, Tenn., Sanford Bros.
Los Angeles, Cal., Omer Cox Co., 1817 Industrial Ave.

New York, N. Y., E. V. N. Myers, 66 West Broadway.
San Francisco, Cal., Omer Cox Co., 140 Spear St.
Seattle, Wash., Sanford Bros., 903 American Bank Bldg.

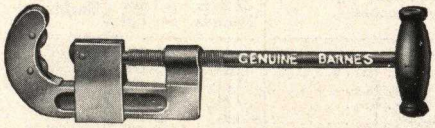
Genuine Barnes Pipe Cutters and Wheels



Above illustrations of Barnes Wheels are actual sizes. Knife blade or knurled type can be furnished.



Design of Nos. 3, 4, 5, 6, 6½ and 7 Genuine Barnes Pipe Cutters



Design of Nos. 1 and 2 Genuine Barnes Pipe Cutters

Price List—Genuine Barnes Cutters and Parts

Cutting Pipe From ⅛ Inch to 12 Inches in Diameter

Size of Cutter	Size of Pipe Inches	Pipe Cutter	Cutter Wheels	Wheel Pins Per Dozen	Hooks	Slides	Nuts	Handles	Approximate Weights Pounds
No. 1	⅛ to 1	$ 4.50	$0.50	$1.00	$ 1.75	$ 0.75	$0.25	$ 1.00	3
No. 2	½ to 2	6.00	.60	1.00	2.60	1.00	.25	1.25	5
No. 3	1½ to 3	10.00	.80	1.00	4.55	2.00	*	2.25	9
No. 4	2½ to 4	20.00	1.00	2.00	9.50	4.50	*	4.50	14
No. 5	4 to 6	30.00	1.10	2.00	13.75	7.00	*	7.00	23
No. 6	6 to 8	40.00	1.10	2.00	20.00	8.50	*	9.25	28
No. 6½	8 to 10	45.00	1.10	2.00	23.00	9.50	*	10.25	34
No. 7	9 to 12	50.00	1.10	2.00	25.00	11.25	*	11.50	51

*Nut and Hook in one piece in these sizes. The same size wheel (No. 5) is used on Barnes Cutters Nos. 5 to 7.

Barnes-Saunders Pipe Cutters



Design of Nos. 1, 2, 3, 4, 5, Saunders Type Pipe Cutters

Price List—Saunders Type Cutters and Parts

Cutting Pipe From ⅛ to 6 Inch

Size of Cutter	Size of Pipe Inches	Complete Pipe Cutter	Wheels Each	Extra Swing and Wheel	Rolls Each	Pins Each	Handles Each	Approximate Weights Pounds
No. 1	⅛ to 1	$ 3.00	$0.50	$1.25	$0.24	$0.10	$1.00	3
No. 2	1 to 2	4.50	.60	1.75	.32	.10	1.25	6
No. 3	2 to 3	11.00	1.10	2.75	.50	.15	1.75	11
No. 4	2½ to 4	18.00	1.10	3.50	.50	.15	3.50	15
No. 5	4 to 6	28.00	1.10	4.00	.50	.15	5.00	23

THE ARMSTRONG MANUFACTURING CO.

Principal Office—303 Knowlton Street—BRIDGEPORT, CONN.

New York Sales and Export Office—225 Lafayette Street

Chicago Sales Office—602 W. Randolph Street

ARMSTRONG Adjustable Stocks and Dies



Each set consists of an ARMSTRONG Adjustable Stock with Kalorized ARMSTRONG Adjustable Dies and Ring Bushings for each cutting size together with Screws, Handles and Wrench necessary. Each set is packed in substantial, hinged, wooden box. Bushings are removable, close nipples can be threaded.

Set No.	List Price	For Threading Pipe Size—Inches	Weight of Sets Pounds	Extra Dies per Pair	Extra Bushings
1	$ 9.00	⅛, ¼, ⅜, ½.....	4½	$1.60	$0.30
2	8.25	½, ¾, 1.....	10¼	2.00	.40
2	10.00	⅜, ½, ¾, 1.....	11¼	2.00	.40
2	12.00	¼, ⅜, ½, ¾, 1.....	12¼	2.00	.40
2	14.00	⅛, ¼, ⅜, ½, ¾, 1.....	13¼	2.00	.40
2½	14.00	½x¾, 1x1¼*.....	14¼	*3.50	.60
2½	19.00	¼, ⅜†, ½x¾, 1x1¼*.....	18	†2.50	.60
2½	21.50	¼, ⅜, ½, ¾, 1, 1¼, 1½†..	20½	†2.50	.60
3	18.00	1¼, 1½, 2.	31	4.50	.75
3	21.00	1, 1¼, 1½, 2.	35	4.50	.75
3	24.00	¾, 1, 1¼, 1½, 2.	39	4.50	.75
3	27.00	½, ¾, 1, 1¼, 1½, 2.	44	4.50	.75

*Indicate double ended dies. †Indicate single end dies; dies otherwise undentified are single end.

ARMSTRONG Ratchet Diestocks

MORE THREADS WITH LESS EFFORT



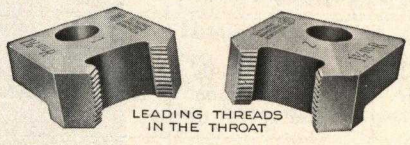
ARMSTRONG Ratchet Diestocks are furnished with Kalorized Armstrong Adjustable Dies and an Adjustable Bushing.

Set No.	List Price	For Threading Pipe Size—Inches	Weight Pounds	Dises per Pair
2R	$19.00	⅛, ¼, ⅜, ½, ¾, 1.....	13	$2.00
2R	17.00	¼, ⅜, ½, ¾, 1.....	12	2.00
2R	15.50	⅜, ½, ¾, 1.....	11	2.00
3R	25.00	1, 1¼, 1½, 2.....	30	4.50
3R	22.30	1¼, 1½, 2.....	27	4.50

No. 2 Ratchet Stocks less Dies, $9.50. No. 3 Ratchet Stocks less Dies, $16.50

ARMSTRONG Ratchet Diestocks can be supplied with Nos. 2 and 3 Armstrong Adjustable Dies for Bolts and Rods as listed in the right hand column.

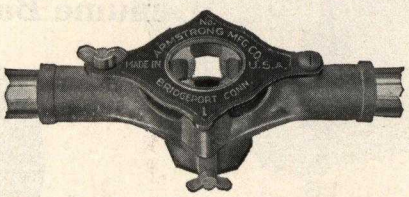
For Threading Brass and Copper Pipe



The added threads cut into the double taper of the throat, pull the dies without effort, even over the meanest burr.

Dies of all sizes listed above can be supplied for I. P. S. Brass and Copper Pipe **at the same list.** Such Dies are stamped "for BRASS PIPE only" for instant identification.

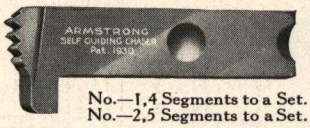
ARMSTRONG Solid Stocks and Dies



These Dies will fit Square Diestocks of any other Manufacturer. NPT (National Pipe Thread) Right Hand furnished unless otherwise specified.

Set No.	List Price	For Threading Pipe Size—Inches	Weight Pounds	Dies Each	Size of Die
0	$ 8.00	⅛, ¼, ⅜, ½.....	5¾	$1.40	2x2x½
1	12.00	⅛, ¼, ⅜, ½, ¾, 1.....	12¾	1.60	
1	10.50	¼, ⅜, ½, ¾, 1.....	11½	1.60	2½x2½
1	9.00	⅜, ½, ¾, 1.....	10½	1.60	x¾
1	7.50	½, ¾, 1.....	9½	1.60	
1½	15.50	¼, ⅜, ½, ¾, 1, 1¼.....	21	2.00	
1½	11.50	½, ¾, 1, 1¼.....	17½	2.00	3x3x¾
1½	9.50	¾, 1, 1¼.....	16	2.00	
2	22.00	½, ¾, 1, 1¼, 1½, 2.	31	2.50	
2	17.00	1, 1¼, 1½, 2.	24½	2.50	4x4x⅞
2	14.50	1¼, 1½, 2.	22	2.50	

ARMSTRONG Self-Guiding Chasers



No.—1,4 Segments to a Set.
No.—2,5 Segments to a Set.

Revolutionizes the narrow chaser stock. The "lips" on the Self-Guiding Chasers guide threader on pipe, hold it true, and center perfectly. No effort to adjust guide screws. No strain. No stripped, ripped or crossed threads.

Threading Sizes Inches	1	1¼	1½	2	2½	3	3½	4
For No. 1 Threader..	$2.50	$2.50	$2.50	$2.50	.....	.....	.....	.....
For No. 1A Threader.	2.50	2.50	2.50	2.50	.....	.....	.....	.....
For No. 2 Threader..	.....	.....	.....	.....	$8.00	$8.00	$8.00	$8.00

ARMSTRONG Adjustable Dies For Bolts and Rods

For Set No.	List Price	Threads Inches
1.....	$1.50	¼ to 7/16
1.....	1.75	½ to ¾
2.....	2.00	¼ to 1
2.....	2.25	1⅛ and 1¼
3.....	5.00	½ to 2

Dies supplied right-hand. Left-hand Dies cost twice the list. Prices on other sets and for Dies with S. A. E. threads, for fine thread purposes on request.

ARMSTRONG Cooling Cutting Oil

"It Cools as You Cut"

Most important development in cooling oil. Took three years to perfect. Takes away the heat, makes the dies cut easy, cut smooth and last longer. Runs freely at low temperatures.

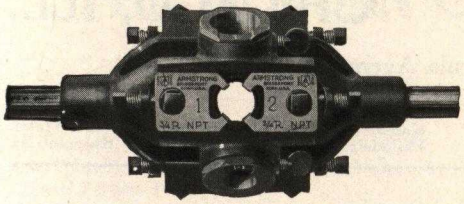
1 gallon in special easy pouring can—$1.50 per gallon.

5 gallons, in special easy pouring can—$1.25 per gallon.

Prices for Drums on application.



ARMSTRONG Adjustable 3-Way Diestock



All No. 2 ARMSTRONG Dies can be used in the 3-Way Diestock

List Price $16.00 for threading, ⅜, ½, ¾-inch pipe. Weight 12 pounds.
List Price $16.00 for threading, ½, ¾, 1-inch pipe. Weight 12 pounds.
IMPORTANT—All No. 2 Dies listed on opposite page can be used in the 3-Way Stock.

ARMSTRONG Chain Vise



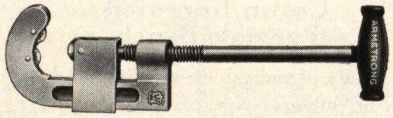
Unbreakable. Compact. Fasten anywhere. Rapid acting. Firm Grip.

No.	List Price	Holds Pipe Inches	Extra Jaws per Pair	Chain with Screw	Handle and Nut
1	$7.00	⅛ to 2	$3.00	$2.50	$2.20
2	15.00	¼ to 4	7.00	4.80	4.20
3	27.00	½ to 6	12.00	9.00	7.00
4	36.00	½ to 8	18.00	12.00	7.00

ARMSTRONG Pipe Cutters

Parts are interchangeable. Knife Blade and Knurled Cutter Wheels made from special alloy.

Barnes Type



Number	Type	List Price	Capacity Inches	Weight Pounds	Wheels Each
1B	3 Wheel	$ 4.50	⅛ to 1	3	$0.50
2B	3 Wheel	6.00	½ to 2	5	.60
3B	3 Wheel	10.00	1½ to 3	9	.80
4B	3 Wheel	20.00	2½ to 4	14	1.00
5B	3 Wheel	30.00	4 to 6	23	1.10
6B	3 Wheel	40.00	6 to 8	28	1.10
6½B	3 Wheel	45.00	8 to 10	34	1.10
7B	3 Wheel	50.00	9 to 12	51	1.10



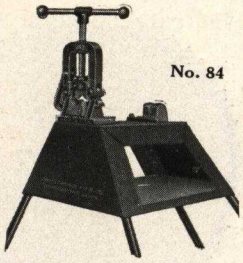
Saunder's Type

Number	Type	List Price	Capacity Inches	Weight Pounds	Wheels Each
1S	Roller	$ 3.00	⅛ to 1	3	$0.50
2S	Roller	4.50	1 to 2	6	.60
3S	Roller	11.00	2 to 3	11	1.10
4S	Roller	18.00	2½ to 4	15	1.10
5S	Roller	28.00	4 to 6	23	1.10

ARMSTRONG Portable Pressed Steel Vise Stands



No. 83

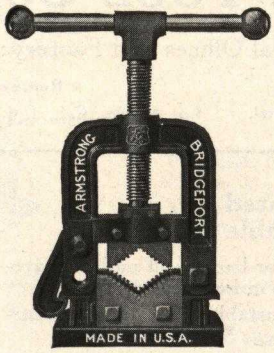


No. 84

Lighter, more practical, yet strong and lasting. Truly portable. One piece tops. Drilled for Standard Vises.

No.	List Price	Description	Weight Pounds
83	$18.00	Portable Vise Stand and Bender only	30
83V	23.00	Above with No. 23 Armstrong Hinged Vise	40½
83C	22.00	Above with No. 1 Armstrong Chain Vise	39
84	21.00	Portable Vise Stand and Bender only	45
84V	26.00	Above with No. 23 Armstrong Hinged Vise	55½
84C	25.00	Above with No. 1 Armstrong Chain Vise	49

ARMSTRONG Pipe Vises



With One Piece Slides

All useless weight eliminated. I-Beam structure provides maximum strength. One-piece slide runs on outside of frame, assures easy operation, and holds upper jaw in place. Flat extension base. Heavy Duty Vise is guaranteed against breakage, bolts and hook cannot loosen or shear.

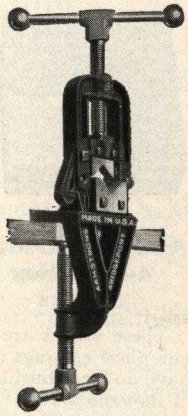
Kit Vise is light enough for every Kit, yet strong and husky. No mounting tools needed; quickly fastened to plank, bench, post of partition.

Special Jaws for BRASS Pipe can be obtained for the Nos. 23, 33 and 43 Vises. Prices upon request.

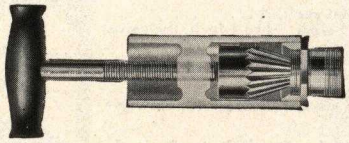
No.	List Price	Holds Pipe Inches	Weight Pounds	Extra Jaws, Three
21	$2.50	⅛ to 1¼	3	$1.20
22	4.25	⅛ to 2	6½	1.80
23	5.00	⅛ to 2½	11	1.80
24	7.50	⅛ to 3½	16	2.55
25	11.00	⅛ to 4½	25	3.60
36	23.50	⅛ to 6	35	6.00

Kit (Clamp Type) Vise

No.	List Price	Holds Pipe Inches	Weight Pounds	Extra Jaws, Three
41	$3.50	⅛ to 1¼	4½	$1.20
42	5.00	⅛ to 2	9½	1.80
43	6.50	⅛ to 2½	14	1.80



ARMSTRONG Nipple Chuck



Cross Section View

Equally as good for Brass and Copper as for Iron and Steel Nipples.

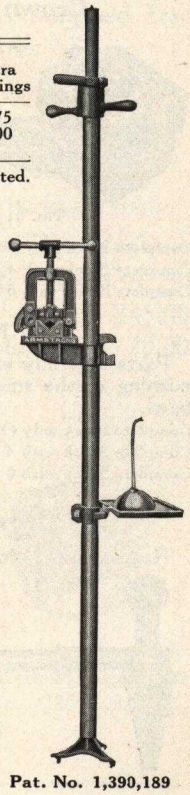
Set No.	List Price	With Set Bushings to Hold Nipples—Inches	Weight Lbs.—Ozs.	Extra Bushings
2	$10.00	¼, ⅜, ½, ¾, 1	3—14	$0.75
3	14.00	1, 1¼, 1½, 2	11	1.00

Right-hand Bushings supplied unless otherwise requested.

ARMSTRONG Portable Vise Posts

Easy to set and to keep in place. Once properly fitted between beam and floor, the post cannot shift, turn or become off balance or disconnected due to the faultless lock and the tri-foot, self-balancing base.

Only one hand is required to lift extension pipe to ceiling. The lock prevents any downward slip of the pipe. One rap of the lock unlocks the post—but it is impossible to loosen it otherwise.



No.	List Price	Description	Weight Pounds
81	$19.50	Portable Vise Post	31½
81V	23.75	As above with Armstrong Hinged Pipe Vise ⅛" to 2"	38
81C	23.50	As above with Armstrong Chain Pipe Vise ⅛" to 2"	35½
82	25.30	Portable Vise Post	55½
82V	32.80	As above with Armstrong Hinged Pipe Vise ⅛" to 3½"	71½
82C	33.80	As above with Armstrong Chain Pipe Vise ¼" to 4"	65½

The Post is shipped complete with universal plate for Hinged or Chain Vise; pipe bender; removable tool tray and oiler.

Pat. No. 1,390,189

CROWN DIE & TOOL COMPANY CHICAGO, ILL.

General Offices and Factory: 267 North California Avenue

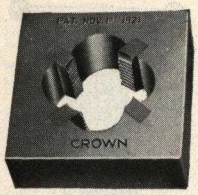
Representatives

Boston, Mass., George H. Glass, Argonne Hotel.
Chicago, Ill., Cook & Walther, 230 N. Canal St.
Los Angeles, Cal., J. J. Connelly, 2108 So. Harcourt Ave.
Kansas City, Mo., A. Shaffer, Ambassador Hotel.
Philadelphia, Pa., H. O. Gessner, 247 Ruscomb St.

Crown Patented Solid and Adjustable Dies

The teeth of these dies are relieved or backed-off and the careful way in which they are made results in long service.

Made to fit standard solid and adjustable stocks and are furnished for both right and left-hand Briggs Standard Threads.



Solid			Adjustable		
No.	Size Inches	List Each	No.	Size Inches	List Each
1	⅛–1	$3.00	2	⅛–1	$4.50
1½	⅜–1½	4.00	2½	½–1¼	5.50
2	½–2	5.00	3	¾–2	7.00

Crown 2, 3 and 4-Way Box Stocks

These stocks are all one piece castings and have no loose bushings or movable parts.



No. 4 Crown Box Stock

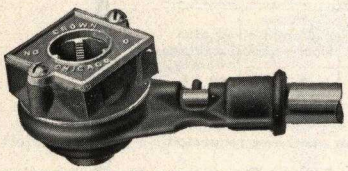
4-Way Stock with 4 Dies, List each.....$17.50
(Any combination of 4 sizes, ⅛ to 1-inch, inclusive)

No. 1—3-Way Stock with 3 Dies, List each..... 16.00
(Any combination of 3 sizes, ⅛ to 1-inch, inclusive)

No. 1½—3-Way Stock with 3 Dies, List each..... 18.00
(Any combination of 3 sizes, ⅜ to 1¼-inch, inclusive)

2-Way Stock with 2 Dies, List Each..... 9.00
(Any combination of 2 sizes, ⅛ to ¾-inch, inclusive)

Crown Reversible Ratchet Stocks



No. 01

No. 01

Designed for ditch work or unhandy corners. Pawl is contained in the handle casting. This feature is patented and owned by the Crown Die & Tool Co.

Complete Stock only (3 bushings, 1 handle), List each.....$ 8.50
Complete Stock with 4 Dies, ⅜ to 1-inch, List each..... 19.50
Complete Stock with 6 Dies, ⅛ to 1-inch, List each..... 25.00

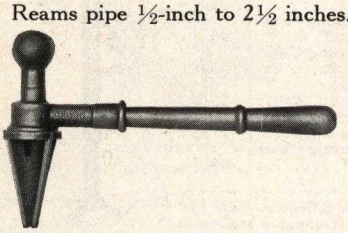
No. 2E (Not illustrated)

Parts are fully enclosed. May be made into a solid stock by pushing in the small pin, making it unnecessary to reverse the pawl.

Complete Stock only (3 bushings, 2 handles), List each.....$15.00
Complete Stock with 4 Dies, 1 to 2-inch, List each..... 32.00
Complete Stock with 6 Dies, ½ to 2-inch, List each..... 41.00

Crown Ratchet Pipe Reamer

Reams pipe ½-inch to 2½ inches. The cone type construction supports the blades the entire length. Blades are replaceable and made of finest steel. Will hold edge, and can be ground without removal. Pawl has extra wide bearing surface on ratchet teeth.



List each.....$7.50

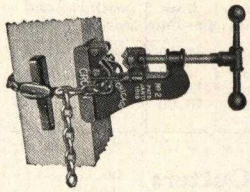
Crown Union Valve Nipple Wrench

Made of semi-steel and has capacity of ½ to 2 inches.



List each.....$1.50

Crown Patented Post Vises

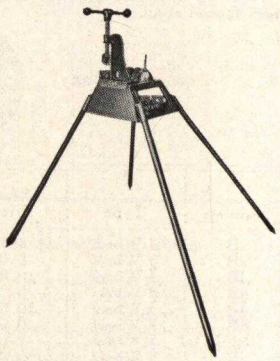


With chain and wedge attachment. Can be readily fastened to any post of any shape without the aid of lag screws. The chain passes entirely through the body of the vise which is a patented Crown feature.

No. 0—Post Vise (Capacity ⅛ to 1-inch), List complete.....$7.00
No. 2—Post Vise (Capacity ⅛ to 2-inch), List complete..... 9.00

Crown Improved Portable Bench

Made of malleable iron. Pipe bender is an integral part of body casting. Legs are drilled so that they may be lagged to floor. Can be drilled to hold any standard vise.



List Prices

Stand complete with Legs and Vise...$32.00
Less Vise..... 24.00
Less Legs and Vise..... 20.00



Crown Pipe Cutters

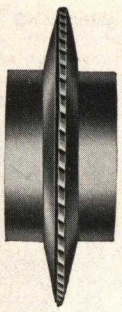
No. 1—One Wheel Cutter ⅛ to 1-inch, List each.....$ 4.00
No. 2—One Wheel Cutter ½ to 2-inch, List each..... 6.00
No. 2X—One Wheel Cutter with extra handle, List each..... 7.00
No. 3—One Wheel Cutter 2½ to 4-inch, List each..... 19.00

No. 1—Three Wheel Cutter (Barnes Pattern), ⅛ to 1-inch, using Saunders Wheels, List each.....$5.00
No. 2—Three Wheel Cutter (Barnes Pattern), ½ to 2-inch, using Saunders Wheels, List each..... 7.00
No. 3—Three Wheel Cutter, 2½ to 4-inch, List each..... 20.00



Crown Pipe Cutter Wheels

Either patented diagonally knurled edge or thin blade type can be furnished.



List Prices

No. 1—Crown, each.....$0.60
No. 2—Crown, each..... .80
No. 3—Crown, each..... 1.10
No. 1—Barnes, each..... .50
No. 2—Barnes, each..... .60
No. 3—Barnes, each..... .80
No. 4—Barnes, each..... 1.00
Nos. 5 and 6—Barnes, each..... 1.10

No. 1—Saunders, each.....$0.50
No. 2—Saunders, each..... .60
Nos. 3 and 4—Saunders, each... 1.10
Made to fit Nos. 1 and 2—Trimo Cutters, each..... .60
Made to fit No. 3—Trimo Cutters, each..... .90

Discounts on Application

THE BORDEN COMPANY WARREN, OHIO

310 Dana Avenue

Branch Offices and Representatives

New York, N. Y., The Borden Co., 50 Water St., Phone Bowling Green 9-8460. P. A. Knauff.
Boston, Mass., Hal Rinear, 88 Gainsborough St., Apartment No. 3.
Philadelphia, Pa., A. J. Brott, 1035 W. Rockland St.
Pittsburgh, Pa., Al Thornton, 2816 Crosby Ave., Dormont.
Chicago, Ill., G. D. Clewell, 1621 E. 84th Place.
Tulsa, Okla., Cy W. Smith, 902 No. Elwood St.
Oakland, Cal., A. F. Howe, 717 Calmar Ave.

The "Model-A" BEAVER ½ to 2-Inch Portable Pipe Machine

A simple, portable, powerful machine—designed primarily to cut and thread iron, steel, cast-iron, brass or copper pipe—½ to 2-inch. Three opening die heads are supplied—(½x¾-inch) (1x1¼-inch) (1½x2-inch). Adjustable for over or under standard. You change die heads—not loose dies! Unnecessary to back off over finished threads.

Die heads for (¼x⅜-inch) and (⅛-inch) available extra.

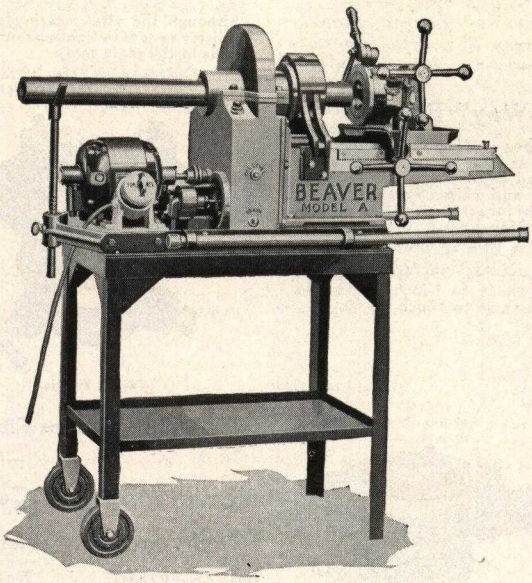
With an extension driving shaft, the "Model-A" serves as a Power Drive to operate geared cutters and threaders from 2½ to 12-inch.

Dies for threading bolts and rods from ¼ to 1-inch available, extra.

The fully automatic cut-off cuts the pipe square and clean—no burrs. Knives cannot be broken due to "hogging."

Large handy star-wheel controls the rack-and-pinion feed.

The "work-head" tips back—a convenience when using the machine as a Power Drive; making up fittings; cleaning, etc.



The Model A Beaver possesses service features found only in machines selling at a much higher price—such as, Adjustable opening die head; Automatic "square-end" cut-off; Positive hand-wheel feed; Tilting die head; Accessible oil pump; Out-board pipe support; Easy portability.

The oil pump, mounted "out in the open," is easily accessible.

Two sliding handle-bars provide easy portability—like wheeling a wheel-barrow.

An adjustable out-board pipe support accommodates long lengths of pipe easily.

Alloy aluminum castings minimize weight.

Universal (reversible) motor operates on any 110 volt line, A.C. or D.C. current, any cycle 25 to 60. If desired, 220 volt motor will be supplied same price.

A five gallon pail of Beaver Threading Oil is shipped free with each machine.

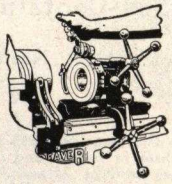
Net Prices

(Apply anywhere in the United States)

"Model-A" Beaver Pipe Machine
Complete with pipe support and portable stand . $362.50
Same—without portable stand 345.00
Extension shaft for operating geared tools 20.00



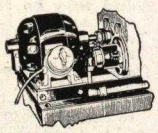
The rugged die head—each head threads two sizes.



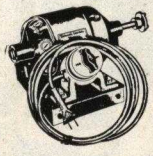
Showing ease of opening die head when thread is cut.



Showing automatic "cut - off" and tilting work-head.



Showing accessibility of oil pump, motor, etc.

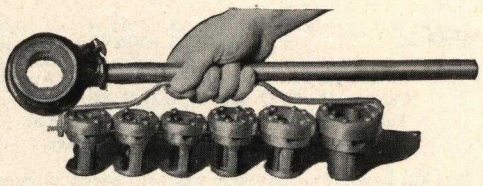


The motor assembly is a complete unit, 110 volt or 220 volt, optional.

See Following Page

The Improved Line of BEAVER Pipe Tools!

No. 3 Beaver Ratchet—⅛ to 1-Inch



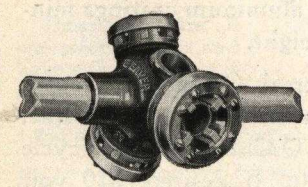
Advantages—Ratchet mechanism fully enclosed—no teeth on die head to become mutilated. Oil holes in die heads for easy oiling and chip clearance. Dies square in shape—no weak sections to break. Dies can be reversed for threading pipe end too short to pass through the die head. Handy die-head carrier pin. For iron, steel, brass or copper pipe. Right or left.

Specials—Bolt die heads ¼ to 1-inch; straight thread conduit dies ½ to 1-inch; ¾ O. D. 20-thread brass pipe dies.

Net Prices—No. 3 Complete—¼ to ¾-inch, $12.75; ⅜ to 1-inch, $13.50; ¼ to 1-inch, $15.75; ⅛ to 1-inch, $18.00.

Units—Ratchet with handle, $3. **Die Heads with Dies**—⅛, ¼ or ⅜-inch, $2.25; ½ or ¾-inch, $2.63; 1-inch, $3.00; ¾-inch, 20-thread Brass, $3.00. **Extra Dies,** any size, per set, $1.63. **Bolt Die Heads,** any size, right hand, ¼ to 1-inch, $3.56.

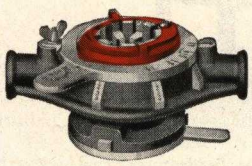
"3-Way" Beavers



Advantages — Companion tools to No. 3 Beaver Ratchet, using same dies and die head caps. Large oil holes for easy oiling and chip clearance. Long handle bosses for strength and to prevent handles working loose. Simple, strong, well balanced. Self-contained. Right or left.

Net Prices—No. 33, ⅜ to ¾-inch, $7.50; No. 34, ½ to 1-inch, $8.50; No. 34-E (conduit), ½ to 1-inch, $8.50.

No. 6 Beaverette ¼ to ¾-Inch



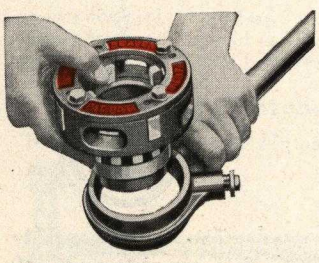
Advantages—Threads ¼ to ¾-inch sizes without changing dies or bushings. Instantly adjusted for over, under or standard. Universal pipe guide centers the pipe accurately. Improved locking device.

The two sets of dies (required because of the two different thread pitches) are always in the the tool. For iron, steel, brass or copper pipe. Dies for ⅛-inch available extra.

Net Prices—No. 6 Beaverette, complete, ¼ to ¾-inch.....$12.00

Extra dies, per set, (⅛), (¼x⅜), (½x¾)..... 2.25

No. 17 Beaver Ratchet—¼ to 2-Inch



Advantages—A rugged fool-proof tool. Four large oil holes **(Bridged Across the Top to Prevent Spreading of Die Slots)** facilitate oiling, provide ample chip clearance, and insure good threads. Die segments are square in shape—no weak sections to break off. Removable for regrinding—**and may be sharpened over and over again.** Extra long handle and special die grinding assists easy operation.

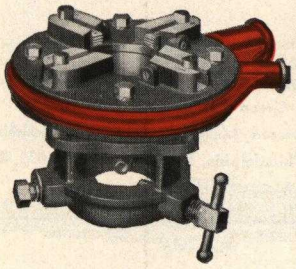
Buy any range of sizes. For steel, iron, cast iron, brass or copper pipe.

Net Prices—No. 17, complete, 1¼ to 2-inch, $13.20; ½ to 2-inch, $22.20; ¼ to 2-inch, $27.80.

Units—One-handle Ratchet stock $2.40; Two-handle Ratchet stock $2.90. **Die Heads with Dies,** ¼, ⅜ or ½-inch, $2.80; ¾-inch, $3.00; 1-inch $3.20; 1¼-inch, $3.40; 1½-inch, $3.60; 2-inch, $3.80. **Extra Dies,** any size, per set, $2.25.

Beaver "4-Post" Die Stocks—1 to 2-Inch

These tools offer many new advantages to those who prefer light-weight, rugged die stocks—using a separate set of dies for each size of pipe.



No. 8-R Ratchet

Straight Line Pull

The ratchet pull is directly on the die head—not on the post plate, which loosens riveted posts.

Self-Contained Rear End

Centers the pipe accurately. Cuts uniform drip threads—also, close nipples. No bushings to lose.

Enclosed Spring Plunger Die Retaining Device

Saves the cost of many lost dies. (No exposed springs to get knocked off).

Open Die Slots for Easy Cleaning

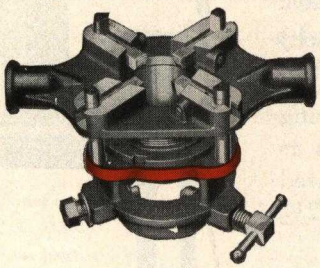
Extra Heavy Upright Posts

Give greater strength, smoother operation and less repair expense.

Light in Weight

Although the vital wearing parts are of extra heavy construction, extreme simplicity results in lightness of weight—only 12¾ pounds in the ratchet tool (9 pounds in the plain tool).

Interchangeable Die Segments



No. 8 Plain

If one segment becomes lost from a BEAVER set, any other BEAVER segment of this same number can be used to complete the set. **A big saving to large contractors using many tools.**

NET PRICES

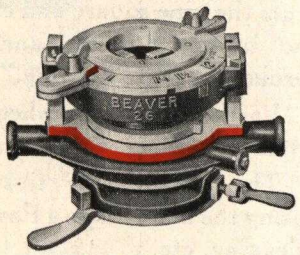
No. 8-R Beaver Ratchet, complete	$12.75
No. 8 Beaver Plain, complete	10.50
Extra dies, any size, 1, 1¼, 1½ or 2-inch, per set	.85
Special Brass Pipe Dies, per set	.85

BEAVER Dies Fit All Standard "4-Post" Tools

Heavy-Duty Self-Contained Beavers—1 to 2-Inch

No. 26—Ratchet....Net $19.25

No. 25—Plain.....Net 16.50



No. 26 Ratchet

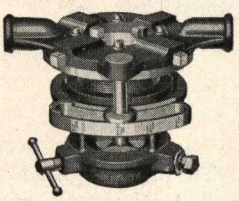
For more than twenty years these sturdy "one-piece" tools have been popular— the world over.

Advantages—Heavy duty, long-life tools. Thread 1, 1¼, 1½ and 2-inch without changing dies or bushings. Adjustable to thread over, under or standard —without affecting the length of thread. Improved die grinding makes them pull easier. Will cut crooked (drain) threads; also close nipples by using a coupling as a nipple holder. New models have many improved features. Right or Left. Special dies available for brass pipe.

Light-Weight Self-Contained Beavers—1 to 2-Inch

No. 11-A—Ratchet.....Net $15.00

No. 11—Plain.....Net 12.50



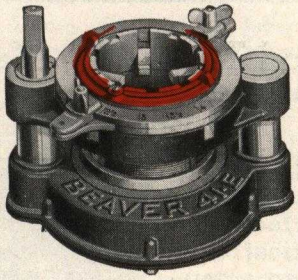
No. 11 Plain

Advantages—Have the same features as Nos. 25 and 26 but are lighter in weight and lower in price. Not as rugged as the Nos. 25 and 26 which are recommended where use is severe. Right hand only.

NET PRICES APPLY ANYWHERE IN THE UNITED STATES

The Improved Line of BEAVER Pipe Tools!

No. 41-E Geared Beaver—2½ to 4 Inches Adjustable—Gears Fully Enclosed



ADVANTAGES—Simple, rugged and adjustable to standard, or variations. One set of dies threads all four sizes. Gears are fully encased and packed in graphite grease. Dirt, sand, mud, chips and other foreign matter cannot get into the gear case and wedge between the gear and pinion teeth. Thus the principal cause of trouble in geared tools is eliminated in the 41-E Beaver—an exclusive Beaver advantage which saves many costly repair bills. The gear case is made of nickel steel (not cast iron). The lower end of pinion rides in a bronze bushing supported by the all-over cover plate—greater rigidity—longer life. The throat of the dies is ground to dress the pipe down ahead of the threading teeth thus producing smooth true threads in one operation.

Special dies available for Brass pipe.

No. 61—2½ to 6 Inches Adjustable

Operates on same principle as No. 41-E Beaver but uses two sets of dies (2½ to 3½ inches) and (4 to 6 inches).

No. 80 Beaver—4½ to 8 Inches Adjustable

Same general design as No. 61. Two sets of dies (4½ to 6 inches) and (7 to 8 inches).

No. 90 Beaver—9 to 12 Inches Adjustable

Same general design as Nos. 61 and 80. Two sets of dies (9 to 10 inches) (and 11 to 12 inches).

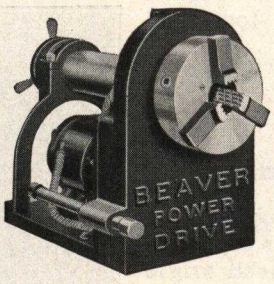
Operating Ratchet

Furnished with each stock for hand use. These tools, however, may be operated with a Power Drive.

NET PRICES

No. 41-E—Beaver, complete, 2½ to 4 inches	$ 55.00
Extra Dies (1 set threads all sizes), per set	6.00
No. 61—Beaver, complete, 2½ to 6 inches	121.00
Extra Dies (2½ to 3½ inches) or (4 to 6 inches), per set	13.34
No. 80—Beaver, complete, 4½ to 8 inches	150.00
Extra Dies (4½ to 6 inches) or (7 to 8 inches), per set	13.34
No. 90—Beaver, complete, 9 to 12 inches	250.00
Extra Dies (9 to 10 inches) or (11 to 12 inches), per set	20.00

Beaver Power Drives



ADVANTAGES—Simple, durable, powerful, portable. Operates any make of hand cutters or threaders. On pipe sizes up to 2 inches the pipe revolves—the tools stand still—insuring safety to the operator. On pipe sizes 2½ to 12 inches an extension driving shaft operates geared cutters and threaders.

No. 46 threads up to 12 inches; No. 45 up to 4 inches; No. 44 up to 6 inches.

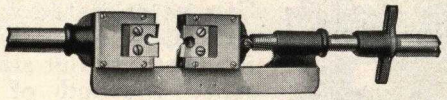
NET PRICES

No. 46 with 110 volt Universal (Reversible) Motor	$187.50
No. 45 with 110 volt A. C. or D. C. Motor (15½ R.P.M.)	145.00
No. 44 with 110 volt A. C. or D. C. Motor (8½ R.P.M.)	125.00
Stand for Power Drive (Extra)	20.00
Extension Driving Shaft (Extra)	20.00

Beaver Square-End (Knife) Pipe Cutters—⅛ to 12 Inches

ADVANTAGES—Cut pipe square without inside or outside burrs. Cutting knives, fed automatically by powerful coil springs, are so made as to prevent hogging—knife breaking—or splitting the pipe at the seam. Improved models work faster—will cut standard or extra-heavy, and cast iron drain pipe. Cut cast iron soil pipe deep enough to be easily broken off—square. Knives give hundreds of cuts, and are easily resharpened. Grinding template furnished for resharpening. Ideal tools for use with Power Drives, as well as by hand. Save the expense of broken hack-saw blades.

SPECIAL KNIVES—Extra—furnished for GROOVING pipe for compression type couplings; and for BEVELING pipe for welding.

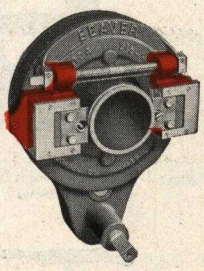


No. 1—⅛ to 1 inch. No. 5—½ to 2 inches.

Turning the "T" handle puts the knives under automatic feeding pressure—then rotate the tool like a die stock.

Geared Cutters

No. 104—2½ to 4 Inches



Simple, durable, self-contained. Gears encased and packed in grease. Universal two-jaw chuck centers and clamps it on the pipe—no loose bushings. A "one-piece" tool. No. 104 Cutter with No. 41-E Die Stock makes an unbeatable 2½ to 4 inches combination for hand or power drive use.

No. 106—2½ to 6 Inches—No. 108—4½ to 8 Inches—No. 112—9 to 12 Inches

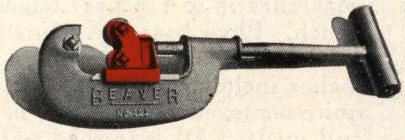
These tools have four cutting knives, pipe centering bushings and grip screws. Knives are set separately but fed automatically. Gears fully enclosed.

NET PRICES

	1	5	104	106	108	112
	$13.50	$15.00	$62.50	$114.00	$144.00	$194.00
Ratchet Handle			6.00	6.00	6.00	6.00
Extra Knives, per set	.80	1.00	1.67	3.34	4.00	8.00
Grooving Knives, per set		4.00	5.00	10.00	10.00	20.00
Welding Knives, per set		4.00	5.00	10.00	10.00	20.00

No. 10 Ratchet Cutter, 2½ to 4". Hand use only $60.00: Extra Knives, per set $1.67.

No. 102 Beaver Thin Wheel Cutter—⅛ to 2 Inches



A rugged tool—extra strong frame with long screw bearing; large comfortable cross-handle—special alloy steel wheels. Made of certified malleable iron to insure long life.

NET PRICE—$3.00. Extra Knives, $0.24; Rollers, $0.12; Pins, $0.06.

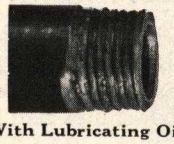
Beaver Threading Oil

For Hand Tools and Threading Machines. The threads illustrated were cut with the same set of (dull) dies—showing the necessity of using specially blended sulphur-base THREADING OIL—an oil that both cools and lubricates. Ordinary lubricating (crank case) oil will not yield good threads, and shortens life of dies and tools.

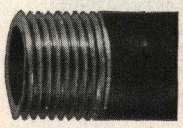
NET PRICES

5 Gallon Pail	$ 4.50	30 Gallon Drum	$24.00
15 Gallon Drum	12.75	55 Gallon Drum	41.25

(F. O. B. Warren, Ohio.)



With Lubricating Oil



With BEAVER Sulphur-base Threading Oil

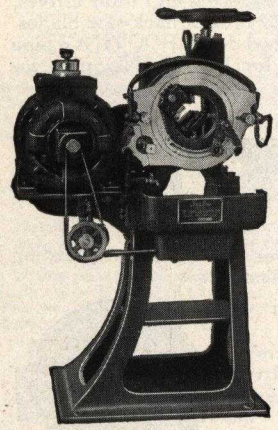
NET PRICES APPLY ANYWHERE IN THE UNITED STATES

THE CURTIS & CURTIS COMPANY BRIDGEPORT, CONN.

Office and Factory—218 Garden Street

The Curtis Pipe Cutting and Threading Machines

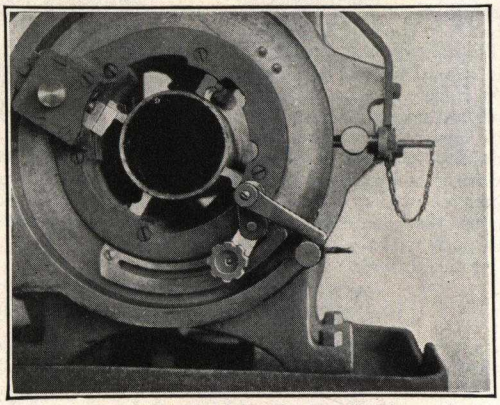
For Hand—Belt or Motor Operation



No. 442
Range 1-4 Inches Bench Machine on Floor Base

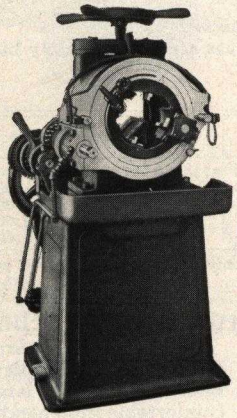
The New Curtis has less dead weight—Needs less floor space—Uses less power—Cuts a clean, true thread—Has extra wide dies with forced feed lubrication—Can be operated by hand in emergencies—Can be easily transported to the job (the smaller sizes)—Is the common sense method of pipe cutting and threading.

The New Curtis Pipe Cutting and Threading Machines follow the principle of holding the pipe stationary and turning the comparatively light dies around it. These machines require but little power to operate, take up but little floor space, and are light in weight. Pipe bends may be threaded as easily as straight pipe. Machines are equipped with automatic oiling device and die release. Dies are interchangeable.



Die Release

Automatic in operation. Adjustable for length. Gives uniform threads. Simple to reset dies. Saves time.

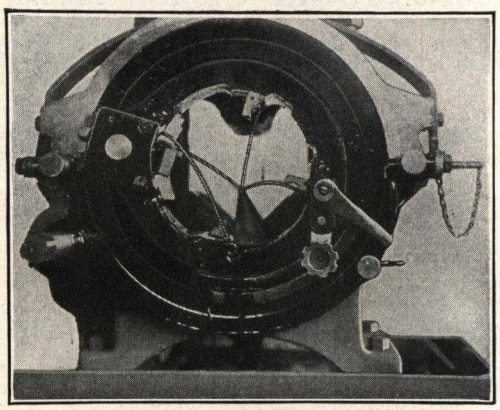


No. 258
Range 1-6 Inches Motor Mounted in Base

Direct Connected Electric

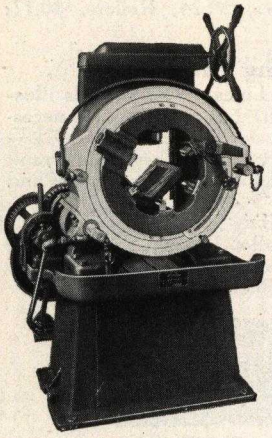
Numbers 430, 437, 442, 258, 265, 269 and 269-B

Similar to hand machine with die head rotated by electric motor. Base is provided with oil drip pan and reservoir into which the oil is strained, then pumped through system. Machines up to 4 inches designed to stand on bench. Floor base and adjustable pipe rest, $100.00 list extra. Machines larger than 4 inches include floor base. State motor requirements, whether A. C. or D. C., phase and cycle. All furnished with commercial motor, adjustable pipe rest, ratchet wrench for hand operation, dies, cut-off tools and necessary wrenches.



Oil Lubrication

Positive oil lubrication. Individual cooled dies. Reduces die breakage. Increases life of machine.

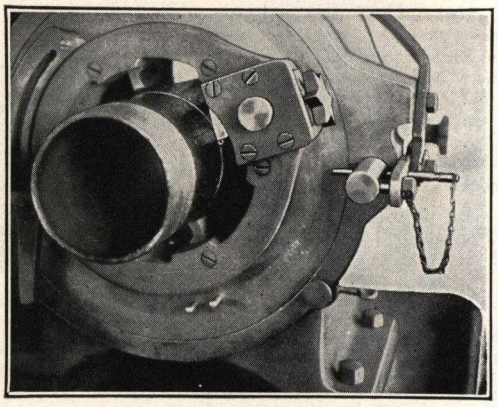


No. 269
Range 2½-12 Inches Motor Mounted in Base

Beveling Pipe for Welding

By using the Curtis Beveling Tool in any size of the Curtis Machines pipe can be beveled rapidly at any desired angle for perfect welding.

Write for our complete catalog and prices for machines of all sizes and styles—Hand Machines — Combined Hand and Belt Driven Machines and Curtis Nipple Holder.



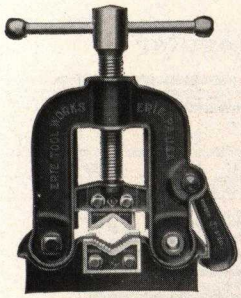
Cut-Off Device

Automatic in feeding. Uniform depth of cut. Saves tool breakage. Saves time and labor. Increases efficiency.

THE ERIE TOOL WORKS — ERIE, PA.

General Office and Factory—Eleventh and French Streets

Branches: Chicago, Ill., 23 South Jefferson Street—New York, N. Y., 53 Warren street



Erie Pipe Vises

Style E—Master Vise

Extra heavy weight vise with drop forged tool steel jaws. Drop forged hook and solid steel screw. Other parts are of certified malleable iron.

Style H
Improved Standard Vise

Medium weight vise having jaws milled from tool steel bars. Hook, base, and yoke of certified malleable iron.

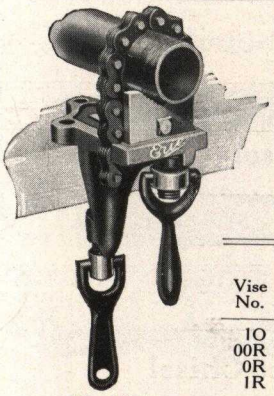
Vise No.	Capacity Pipe Inches	List Price Each	Weight Lbs.	Jaws per Set	Vise No.	Capacity Pipe Inches	List Price Each	Weight Lbs.	Jaws per Set
0E	⅛– 2	$ 4.25	8½	$1.40	1H	⅛– 2½	$ 5.00	10	$ 1.75
1E	⅛– 2½	6.00	14	1.75	2H	⅛– 3½	7.50	15	2.50
2E	⅛– 3½	9.00	21	2.50	3H	⅛– 4½	11.00	22	3.50
3E	⅛– 4½	12.50	32	3.50	4H	⅛– 6	23.50	47	6.00
4E	⅛– 6	23.50	50	6.00	5H	1 – 8	47.50	68	8.50
00H	⅛– 1¼	2.50	4	1.20	6H	1½–12	70.00	113	13.50
0H	⅛– 2	4.25	6	1.40	.....	.....	.....	.....	.....

Erie Three Jaw Chain Pipe Vise

Equipped with three jaws of tool steel. The third smaller jaw is inserted between the two large jaws and acts as a rest, preventing kinks and bends in smaller sizes of pipe. The third jaw also effectively aids in holding short nipples, ells, tees and odd shapes. Chain is of chrome nickel steel.



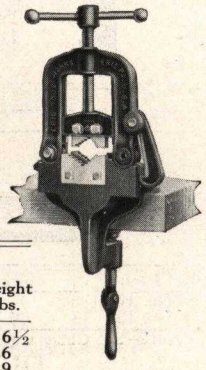
Vise No.	Pipe Capacity	Weight	List Price
11	⅛–2½	4½	$ 7.00
12	¼–4	11½	15.00



No. 1O

Kit Pipe Vises

Designed to be easily attached to a bench or post without the use of bolts or lag screws.

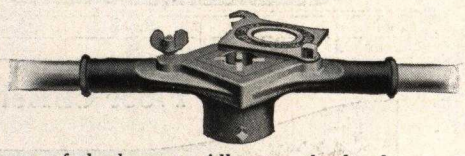


Vise No.	Capacity Pipe Inches	List Each	Weight Lbs.
1O	⅛–2½	$8.50	6½
00R	⅛–1¼	3.50	6
0R	⅛–2	5.00	9
1R	⅛–2½	6.50	14

Nos. 00R, 0R, 1R

Erie Stocks and Solid Pipe Dies

Sets as listed packed complete with dies and guides in an individual box. Special sets of wider capacities can be made up to suit requirements of the buyer. All parts absolutely guaranteed.



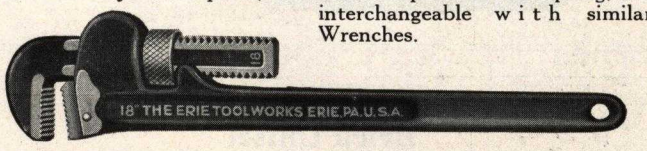
Set No.	Pipe Sizes Inches	Sets each with R. H. Dies	Weight Lbs.	Dies R. H. or L. H.	Guides	Dimensions of Dies
0	⅛– ½	$ 8.00	7	$1.40	$0.30	2 x2 x½
1	¼–1	10.50	13	1.60	.40	2½x2½x¾
1½	¾–1¼	9.50	15	2.00	.60	3 x3 x¾
2	1¼–2	14.50	27	2.50	.75	4 x4 x⅞

Extra lead screw for No. 2, $2.00.

No. 2 stocks have lead screw of 2-inch pipe size diameter of hole and no 2-inch guide is required.

Erie Pipemaster Wrenches

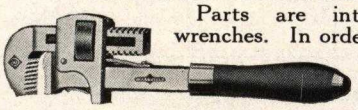
Erie Pipemaster Wrenches are unusual in their strength and oversize capacity. Their design (one-piece handle and housing and replaceable Jaws, guarantees considerable extra service and resultant economy. The parts, with the exception of the Spring, are interchangeable with similar Wrenches.



Size.....Inches	6	8	10	14	18	24	36	48
Capacity Pipe, inches.....	¾	1	1½	2	2½	3	4½	6
Weight, per dozen.....	5	10	20	39	58	95	195	332
List Price, each.....	$1.90	$2.20	$2.85	$3.85	$5.50	$8.50	$15.00	$25.00

Erie Guaranteed Stillson Wrenches

Parts are interchangeable with similar wrenches. In ordering specify whether wood or steel handle are wanted. Forged from special analysis tool steel. Every part thoroughly tested.



Size.....Inches	6	8	10	14	18	24	36	48
Capacity Pipe, In..	⅛–½	⅛–¾	⅛–1	¼–1½	¼–2	¼–2½	¼–3½	1–5
List Price, Each:								
Wood Handle....	$2.00	$2.30	$3.15	$4.25	.....	.....	.....	.....
Steel Handle.....	1.90	2.20	2.85	3.85	$5.50	$8.50	$15.00	$25.00
Weight, per Doz.:								
Wood Handle....	4	8	18	33	.....	.....	.....	.....
Steel Handle.....	4	9	17	35	52	93	188	320

Extra Parts—Standard List

Erie Roller Pipe Cutters

Improved Saunders Pattern

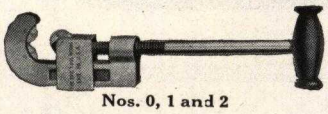
Thin knife blade cutting wheel of special alloy tool steel used in all sizes. Rollers and pins also of tool steel, hardened and tempered. Block faced with hardened steel at wearing point. All parts interchangeable and guaranteed.



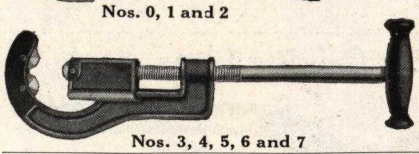
Size No.	Cuts Pipe Inches	List Price Each	Weight Lbs.	Wheels Each	Pins Each	Rollers Each	Block and Wheel Each	Screw and Handle Each
1	⅛–1	$ 3.00	3	$0.50	$0.10	$0.24	$1.25	$1.00
2	1 –2	4.50	7	.60	.10	.32	1.75	1.25
3	2 –3	11.00	12	1.10	.15	.50	2.75	1.75
4	2½–4	18.00	16	1.10	.15	.50	3.50	3.50
5	4 –6	28.00	23	1.10	.15	.60	4.00	5.00

Erie Three Wheel Pipe Cutters

Barnes Pattern



Nos. 0, 1 and 2



Nos. 3, 4, 5, 6 and 7

Thin Knife Blade cutting wheels used in all sizes. Wheels are made of special alloy tool steel carefully hardened and tempered to insure long life and easy cutting. All parts interchangeable with other standard makes of Barnes pipe cutters.

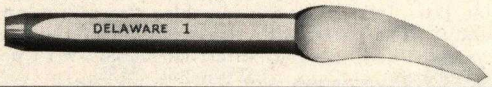
Size No.	Cuts Pipe Inches	List Price Each	Weight Pounds	Wheels Each	Pins Dozen	Screw and Handle Each
0	⅛– ¾	$ 4.00	2	$0.50	$1.00	$ 1.00
1	⅛– 1	4.50	3	.50	1.00	1.00
2	½– 2	6.00	5	.60	1.00	1.25
3	1½– 3	10.00	7	.80	1.00	2.25
4	2½– 4	20.00	12	1.00	2.00	4.50
5	4 – 6	30.00	18	1.10	2.00	7.00
6	6 – 8	40.00	23	1.10	2.00	9.25
6½	9 –10	45.00	35	1.10	2.00	10.25
7	9 –12	50.00	45	1.10	2.00	11.50

DELAWARE TOOL STEEL CORPORATION WILMINGTON, DEL.

General Office and Plant—3300-3302 Market Street

Plumbers' Tools

Bent Picking Chisel



Tool	Stock	Length	Price Each
No. 1	5/8	7 1/2	$0.78

Brick Chisel



Tool	Stock	Cut	Length	Price Each
No. 2	1/2	3/4	10	$0.60
No. 3	5/8	1	12	.75
No. 3 1/2	5/8	1	24	1.25

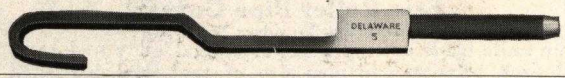
Cape Chisel



Tool	Stock	Cut	Length	Price Each
No. 4	1/2	1/4	6 1/2	$0.40

Note—See Chisel Catalogue for other sizes.

Ceiling Calking Iron



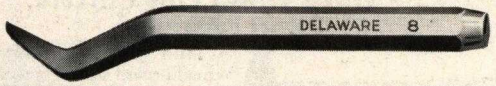
Tool	Length	Price Each
No. 5	14	$2.00

Calking Irons—Double



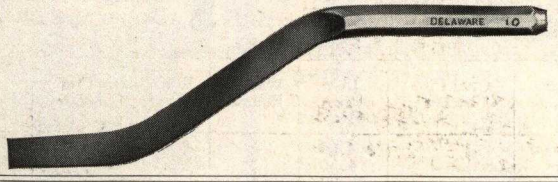
Tool	Stock	Length	Price Each
No. 6	5/8	9	$0.85
No. 7	5/8	16	1.20

Calking Irons—Bent



Tool	Style	Stock	Length	Price Each
No. 8	Outside	5/8	7	$0.72
No. 9	Inside	5/8	7	.72

Off-Set Calking Irons



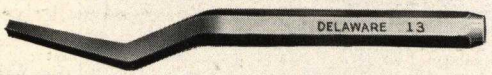
Tool	Style	Stock	Length	Price Each
No. 10	Left Hand	5/8	11	$0.95
No. 11	Right Hand	5/8	11	.95

Calking Iron—Regular



Tool	Stock	Length	Price Each
No. 12	5/8	8 3/4	$0.72

Calking Iron—Short



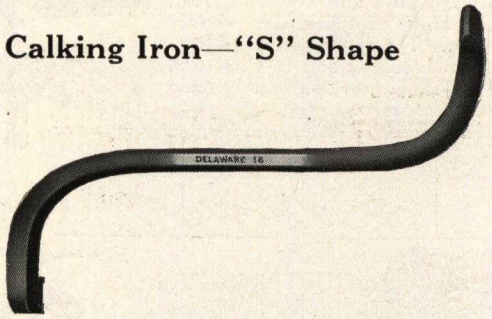
Tool	Stock	Length	Price Each
No. 13	5/8	7 3/4	$0.72

Calking Iron—Stub



Tool	Style	Stock	Length	Price Each
No. 14	Inside	5/8	5	$0.62
No. 15	Outside	5/8	5	.62

Calking Iron—"S" Shape



Tool	Stock	Length	Price Each
No. 16	1/4 x 3/4	12	$1.20

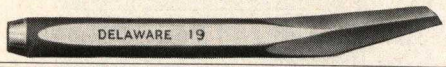
Cold Chisel



Tool	Size	Stock	Length	Price Each
No. 17	1/2	1/2	6	$0.35
No. 18	7/8	7/8	8	.80

Note—See Chisel Catalogue for other sizes.

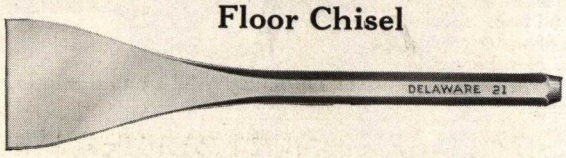
Diamond Point Chisel



Tool	Size	Stock	Length	Price Each
No. 19	3/8	5/8	7	$0.55

Note—See Chisel Catalogue for other sizes.

Floor Chisel

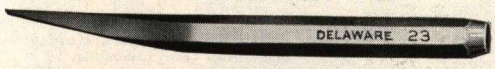


Tool	Blade	Stock	Length	Price Each
No. 20	2	5/8	10	$1.00
No. 21	2 1/2	5/8	10	1.10
No. 22	3 1/4	3/4	12	1.40

Sole Manufacturers of DELAWARE Plumbers Tools

Plumbers' Tools

Gasket Iron—Yarner



Tool	Stock	Length	Price Each
No. 23	5/8	7	$0.70

Gasket Iron—Yarner



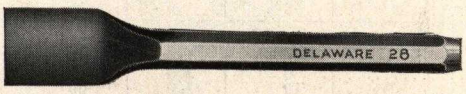
Tool	Stock	Length	Price Each
No. 24	5/8	12	$0.90
No. 25	5/8	14	1.00
No. 26	5/8	16	1.20

Gasket Iron—Spring Yarner



Tool	Stock	Length	Price Each
No. 27	5/8	18	$1.18

Packing Iron—Heavy Curved



Tool	Blade	Stock	Length	Price Each
No. 28	1 3/8	5/8	7 1/2	$0.72

Round Nose Chisel



Tool	Size	Stock	Length	Price Each
No. 29	3/8	5/8	7	$0.55

Note—See Chisel Catalogue for other sizes.

Star Drills



Tool	Size	Length	Price Each
No. 30	1	12	$0.95
No. 30 1/2	1	24	1.35
No. 31	3/4	12	.75
No. 31A	3/4	12	.45
No. 31B	1/2	12	.55
No. 31C	5/8	12	.65
No. 31D	7/8	12	.85

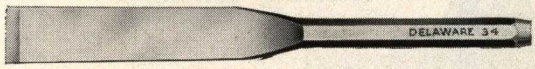
Note—See Drill Catalogue for other sizes.

Straight Joint Chisel



Tool	Stock	Length	Price Each
No. 32	1/2	10	$0.72

Wood Chisel



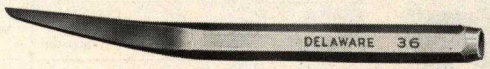
Tool	Blade	Stock	Length	Price Each
No. 33	3/4	1/2	10	$0.85
No. 33 1/2	1/2	3/8	10	.60
No. 34	1	5/8	10 1/2	1.00
No. 34 1/2	1 1/4	5/8	10 1/2	1.10

Wood Gouge



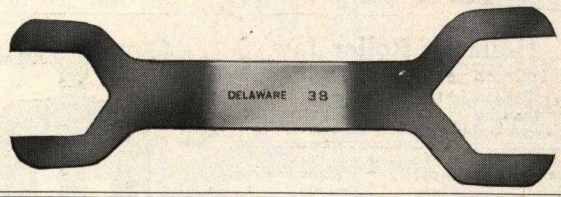
Tool	Bevel	Blade	Length	Stock	Price Each
No. 35	Outside	1 1/8	10	5/8	$1.25
No. 35 1/2	Inside	1 1/8	10	5/8	1.25

Calking Irons—Straight



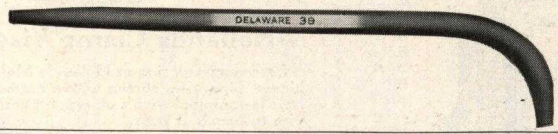
Tool	Style	Stock	Length	Price Each
No. 36	Outside	5/8	7	$0.72
No. 37	Inside	5/8	7	.72

Closet Spud Wrench



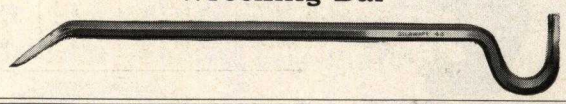
Tool	Spud Sizes	Price Each
No. 38	1 1/4 and 2	$1.25
No. 38A	1 1/2 and 2	1.25

Bending Pin



Tool	Stock	Length	Price Each
No. 39	1/2	12	$0.52

Wrecking Bar



Tool	Stock	Length	Price Each
No. 40	3/4	24	$2.00
No. 40A	5/8	18	1.40

Pipe Swedging Tools





Tool	Size	Price Each
No. 41	1 1/4—1 3/8—1 1/2 2 only	$1.50
No. 42		1.00

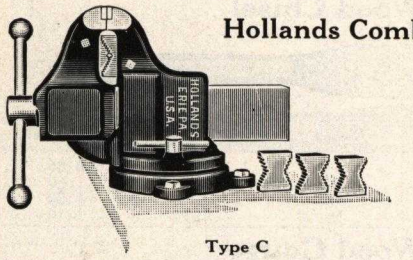
Sole Manufacturers of DELAWARE Plumbers' Tools

HOLLANDS MANUFACTURING CO. Established 1887 ERIE, PA.

Representatives:

Chicago, Ill., Irving S. Kemp Co., 4139 West Kinzie Street.
Montreal, Que., F. Bacon & Co. Ltd., 131 St. Paul St.
Los Angeles, Cal., F. W. Jonas Co., 320 E. 3rd St.
New York, N. Y., Henricks & Howell, 41 Murray Street.
Pittsburgh, Pa., Wayne Paulin, Wabash Bldg.
Seattle, Wash., A. C. Eck Co., 1108 Post Street.

Hollands Combination Vises

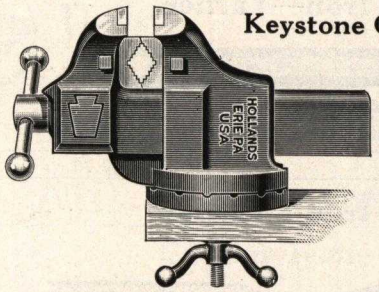


All three pipe jaws are interchangeable and reversible. The swivel base is positive and locks at any point.

Type C

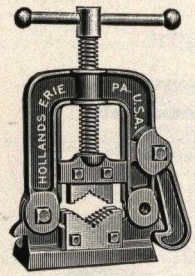
No.	Width of Jaw, Inches	Holds Pipe Inches	Weight Pounds	Price Each
52	3½	⅛ to 2½	55	$16.00
53	4¼	⅛ to 3½	82	22.00
54	5	⅛ to 4½	120	32.00
56	6	⅛ to 6	186	45.00

Keystone Combination Vises



The pipe jaws are milled from steel bars and are interchangeable and reversible.

No.	Width of Jaw Ins.	Holds Pipe Inches	Wt. Lbs.	Price Each
69	3	⅛ to 1½	20	$10.00
70	3½	⅛ to 2	40	16.00
71	4¼	⅛ to 3½	64	22.00
72	5	⅛ to 4½	106	32.00
73	6	¼ to 6	148	45.00



Hollands Malleable Hinged Pipe Vises

No.	Pipe Capacity Inches	Weight Pounds	List Price Each
398	⅛ to 1¼	4	$ 2.50
399	⅛ to 1½	5	3.60
401	⅛ to 2	10	4.25
402	⅛ to 2½	12	5.00
403	⅛ to 3½	18	7.50
404	⅛ to 4½	30	11.00
406	⅛ to 6	55	23.50
408	1 to 8	80	47.50
412	1½ to 12	160	70.00

Melting Pots



No. 1

No. 1

Cast bowl. Wrought iron handle.

No. 2

Cast bowl, wrought iron handle. Equipped with pouring lip and tilting fixture.



No. 2

No. 1

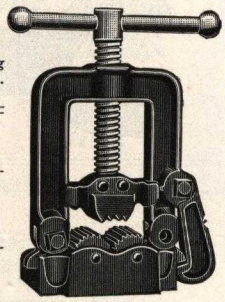
Diameter Inches	Depth Inches	Capacity Pounds	Weight Pounds	List Price Each
4	2¼	8	2	$0.40
5	2¾	10	2½	.50
6	3½	20	4	.70
7	3¾	25	5	1.00
8	4¼	35	6	1.40
9	5¼	60	10	2.00
10	5¾	90	15	2.80

No. 2

12	7½	175	24	$4.20
13½	8	200	28	5.40
15	10	300	60	9.00

Hollands Roller Jaw Pipe Vises

The roller jaw feature gives a much larger gripping surface than "V" jaws, and will not split the pipe. Especially adapted for electrical conduit.



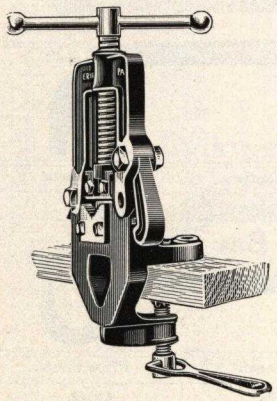
Vise No.	Pipe Capacity Inches	Weight Pounds	List Price Each
R2	⅛ to 2½	12	$ 5.00
R3	¼ to 3	20	7.50
R4	¾ to 4	24	11.00

Plumbers' Malleable Iron Ladles



Double Lipped

Diameter Inches	Length Inches	Capacity Pounds	Weight per doz. Lbs.	List Price per Doz.
2½	13	1	9	$2.40
3	13	1½	10	3.00
3½	15½	2½	14	4.00
4	16	3½	17	4.80
5	19	7	24	6.00
6	21	12	30	7.20

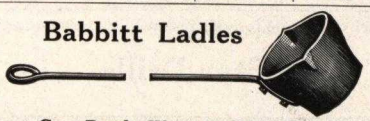


Hollands Clamp Vises

Same construction as Hollands Malleable hinged pipe vises shown above except that base is equipped with a clamp, for clamping vise to bench or post.

Vise No.	Pipe Capacity Inches	Weight Pounds	List Price Each
399-C	⅛ to 1½	8	$3.50
400-C	⅛ to 2	13	5.00
402-C	⅛ to 2½	15	6.50

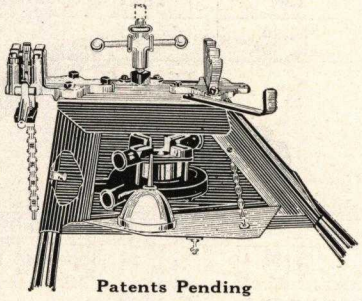
Babbitt Ladles



Cast Bowl—Wrought Iron Handles

Diameter Inches	Capacity Pounds	Capacity Quarts	Weight Pounds	Length Over All Inches	List Price Each
6	25	1	7	32	$2.40
8	50	2	12	45	3.60
10	100	4	20	52	6.00

Hollands Combination Vise Stand and Tool Chest

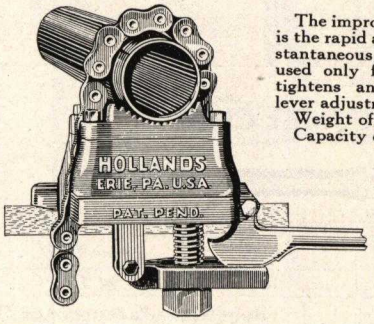


List Prices

No. 100C—Vise and stand complete with Legs..... $44.00
No. 100-V—Vise and Stand without Legs..... 40.50
No. 100—Stand only without Legs, Vise or Pipe Rack..... 25.50
No. 2—Chain Pipe Vise only 15.00
Pipe Rack only..... 4.00

Patents Pending

Hollands Improved Quick-Action Chain Pipe Vise



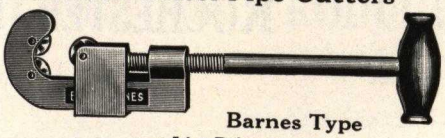
The improved feature of this Chain Pipe Vise is the rapid acting cam adjustment, which is instantaneous and positive. Adjusting nut is used only for different sizes of pipe. Vise tightens and releases instantaneously with lever adjustment.

Weight of Vise 15 pounds.
Capacity of Vise ⅛ to 4-inch pipe.

List Price of Complete Vise and Extra Parts

No. 2 Vise Complete... $15.00
Extra Chain..... 4.00
Extra Jaws, set of 2.... 5.00
Extra Base..... 6.00
Extra Cam Lever..... 2.00
Extra Cam Shoe..... 2.00
Extra Chain Bolt..... 2.00

Three Wheel Pipe Cutters



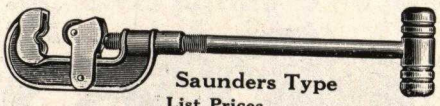
Barnes Type

List Prices

Size Number	Complete	Cuts Pipe Inches	Wheels	Pins Doz.	Hooks	Slides	Handles
0	$ 4.00	1/8 to 3/4	$0.50	$1.00	$ 1.75	$ 0.75	$ 1.00
1	4.50	1/8 to 1	.50	1.00	1.75	.75	1.00
2	6.00	1/2 to 2	.60	1.00	2.60	1.00	1.25
3	10.00	1 1/2 to 3	.80	1.00	4.55	2.00	2.25
4	20.00	2 1/2 to 4	1.00	2.00	9.50	4.50	4.50
5	30.00	4 to 6	1.10	2.00	13.75	7.00	7.00
6	40.00	6 to 8	1.10	2.00	20.00	8.50	9.25
6 1/2	45.00	8 to 10	1.10	2.00	23.00	9.50	10.25
7	50.00	9 to 12	1.10	2.00	25.00	11.25	11.50

Nuts for Nos. 0, 1 and 2—25c each. For other sizes nut included with hook.

Roller Pipe Cutters



Saunders Type

List Prices

Size Number	Complete	Cuts Pipe Inches	Wheels	Rollers	Pins	Handle	Block and Wheel
1	$ 3.00	1/8 to 1	$0.50	$0.24	$0.10	$1.00	$1.25
2	4.50	1 to 2	.60	.32	.10	1.25	1.75
3	11.00	2 to 3	1.10	.50	.15	2.25	2.75
4	18.00	2 1/2 to 4	1.10	.50	.15	4.50	3.50
5	28.00	4 to 6	1.10	.60	.15	7.00	4.00

Hollands Improved Pipe Cutters



Interchangeable Wheel or Roller Type

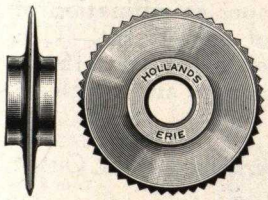
Holland pipe cutters are extra strong and durable and are guaranteed to remain in alignment.

Equipped with knife blade wheels.

List Prices

3-Wheel Type		Roller Type		
Number	Cuts Pipe Inches	Number	Cuts Pipe Inches	List Price Each
1W	1/8 to 1 1/4	1R	1/8 to 1 1/4	$ 4.50
2W	3/8 to 2	2R	1/2 to 2	6.00
3W	1 to 3 1/2	3R	1 1/4 to 3 1/2	11.00
4W	1 to 4	4R	2 to 4	18.00
5W	2 1/2 to 6	5R	2 1/2 to 6	28.00

Thin Blade Pipe Cutter Wheels



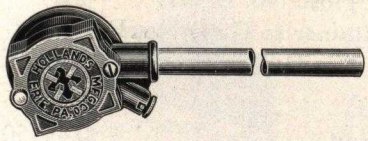
Smooth Edge or Knurled Wheels

Barnes Wheels		Saunders Wheels		Hollands Wheels	
Size No.	List	Size No.	List	Size No.	List
1	$0.50	1	$0.50	1	$0.50
2	.60	2	.60	2	.60
3	.80	3	1.10	3	1.10
4	1.00	4	1.10	4	1.10
5-6-6 1/2-7	1.10	5	1.10	5	1.10

Wheels to Fit Trimo Pipe Cutters

No. 1.....$0.60 No. 2.....$0.60 No. 3.....$0.90

Hollands Malleable Reversible Ratchet Stock for Solid Dies



A light convenient tool for close work. Can be operated in a space 3 1/2 inches wide. No. 1 Stock weighs 4 pounds. Each complete set packed in a separate box.

Set No.	Pipe Capacity Inches	List Price Set	Extra Stock Only	Extra Dies Each	Extra Guides Each
1R	1/4 to 1	$12.00	$5.00	$1.60	$0.40
1RA	1/8 to 1	13.50	5.00	1.60	.40
1RB	1/4 to 3/4	10.50	5.00	1.60	.40
1RC	1/2 to 1	9.00	5.00	1.60	.40
1RD	1/2 to 3/4	7.50	5.00	1.60	.40

Hollands Adjustable Stocks and Dies



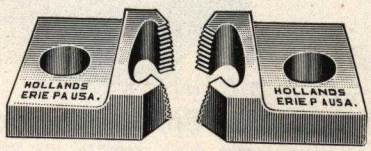
Interchangeable with all standard makes. Each complete set packed in a strong fibre box.

Set No.	Pipe Capacity Inches	List Price Set	Stock Only Each	Extra Dies Each	Extra Guides Each
1AH1	1/8 to 1/2	$ 9.00	$3.25	$1.60	$0.30
2AH1	1/4 to 1	12.00	4.00	2.00	.40
2AH2	1/8 to 1	14.00	4.00	2.00	.40
2AH3	1/8 to 3/4	12.00	4.00	2.00	.40
2AH4	3/8 to 1	10.00	4.00	2.00	.40
2AH5	1/2 to 1	8.00	4.00	2.00	.40
2AH6	1/2 to 3/4	6.50	4.00	2.00	.40
2 1/2AH1	1/2 to 1 1/4	14.00	5.25	2.50	.60
2 1/2AH2	3/8 to 1 1/4	16.50	5.25	2.50	.60
2 1/2AH3	1/4 to 1 1/4	19.00	5.25	2.50	.60
2 1/2AH4	1/8 to 1 1/4	21.50	5.25	2.50	.60
2 1/2AH5	1/2 to 1 1/2	16.50	5.25	2.50	.60
3AH1	1 1/4 to 2	18.00	7.00	4.50	.75
3AH2	1 to 2	21.00	7.00	4.50	.75
3AH3	3/4 to 2	24.00	7.00	4.50	.75
3AH4	1/2 to 2	27.00	7.00	4.50	.75

Hollands Improved Easy-Cutting Pipe Dies

Adjustable Type

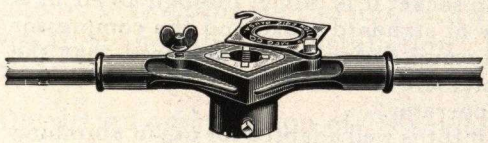
These Dies will start easier, cut better threads and give maximum service.



List Prices

No.	Pipe Size Inches	List Price Each
1 AH	1/8, 1/4, 3/8, 1/2	$1.60
2 AH	1/8, 1/4, 3/8, 1/2, 3/4, 1	2.00
2 1/2AH	1/8, 1/4, 3/8, 1/2, 3/4, 1, 1 1/4, 1 1/2	2.50
3 AH	1/2, 3/4, 1, 1 1/4, 1 1/2, 2	4.50

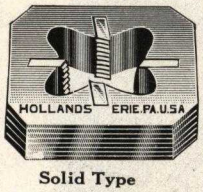
Hollands Malleable Pipe Stocks and Solid Dies



Any standard make of solid die of the same dimensions can be used in these stocks. Each complete set packed in a separate box. No. 2 Stock has Lead Screw.

Set No.	Pipe Capacity Inches	List Price Set	Stock Only Each	Extra Dies Each	Extra Guides Each
0	1/8 to 1/2	$ 8.00	$3.00	$1.40	$0.30
1	1/4 to 1	10.50	3.50	1.60	.40
1A	1/8 to 1	12.00	3.50	1.60	.40
1B	1/4 to 3/4	9.00	3.50	1.60	.40
1C	1/2 to 1	7.50	3.50	1.60	.40
1D	1/2 to 3/4	6.00	3.50	1.60	.40
1 1/2	3/4 to 1 1/4	9.50	4.00	2.00	.60
1 3/4	1 to 1 1/2	9.50	4.00	2.00	.60
1 3/4A	1/4 to 1 1/4	15.50	4.00	2.00	.60
1 3/4B	1/2 to 1 1/4	11.50	4.00	2.00	.60
2	1 1/4 to 2	14.50	8.50	2.50	.75
2A	1 to 2	17.00	8.50	2.50	.75
2B	3/4 to 2	19.50	8.50	2.50	.75
2C	1/2 to 2	22.00	8.50	2.50	.75

Hollands Improved Easy-Cutting Pipe Dies



Solid Type

Solid Type

These Dies will start easier, cut better threads, last longer and give maximum service.

List Prices

No.	Dimensions Inches	Pipe Size, Inches	List Price Each
0	2 x2 x 1/2	1/8, 1/4, 3/8, 1/2	$1.40
1	2 1/2x2 1/2x 3/4	1/8, 1/4, 3/8, 1/2, 3/4, 1	1.60
1 1/2	3 x3 x 3/4	1/8, 1/4, 3/8, 1/2, 3/4, 1, 1 1/4, 1 1/2	2.00
2	4 x4 x 7/8	1/2, 3/4, 1, 1 1/4, 1 1/2, 2	2.50
3	5 x5 x1 1/4	2 1/2, 3	9.00

KELLOGG MANUFACTURING CO. ROCHESTER, N. Y.

Main Office—110 Humbolt Street

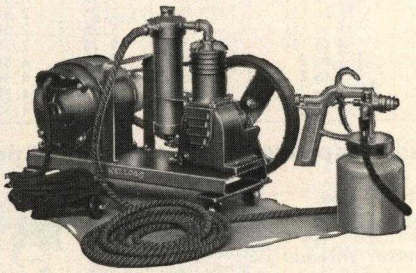
Branch Offices

Elgin, Ill. Houston, Texas New York, N. Y., 200 Fifth Ave.
San Francisco, Cal., 543 Howard St. Toronto, Ont., Can.

Sales Offices

Boston, Mass. Dallas, Texas Kansas City, Mo. Nashville, Tenn.

Kellogg Paint Spray Equipment



Utility Spray Painting Equipment

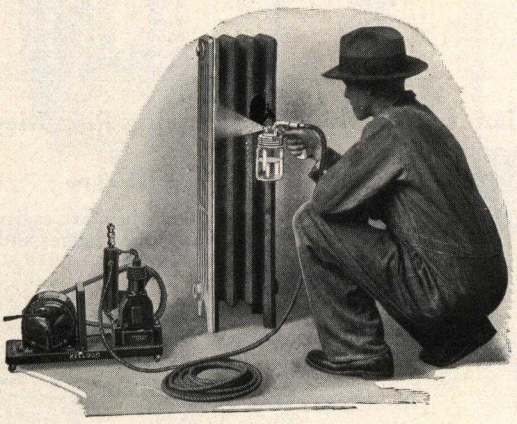
The Kellogg Utility Spray Paint Outfit Type 32 is a small, compact and portable unit. It is furnished complete with all the essentials for spray painting. A real air compressor complete with all necessary fittings; a pressure fed spray gun giving excellent atomization; 15 feet of hose and 10 feet of electric extension cord.

The compressor unit, which is mounted on casters, is compact and weighs but 39 pounds. Designed to be run from a lamp socket it is driven through a belt by a ¼ H. P. motor of standard make and the compressor speed and spray gun design are so balanced that the best painting pressure is maintained without effort on the part of the operator.

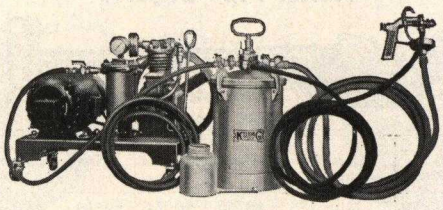
The Utility Outfit is well adapted for use in plumbing and heating shops and because it can be easily carried and be used on the job. Particularly valuable for painting radiators, hot surfaces, exterior of bathtubs, sinks, etc.

Prices

For 60 cycle A. C. Current, 110 Volt.....$52.70
For 60 cycle Direct Current, 110 Volt..... 60.70
For 25 or 50 cycle A. C. Current, 110 Volt..... 54.70



Above illustrates the Kellogg Utility Spray Painting Equipment as used in painting a cast iron radiator.



Spray Equipment Outfit No. 19-A

With Gasoline Engine Drive

Outfit No. 19-A is a complete portable paint spraying outfit for pressure feed work. The two-gallon pressure material container is equipped with regulator and gauge, so that the flow of paint may be governed according to the nature of the work and skill of the operator.

This outfit, which may be had with either an electric or gasoline engine driven compressor, is very valuable where a low priced outfit of high quality is desired. For general maintenance work, painting of heating plants and radiators, etc., it combines portability, efficiency and low initial cost.

The Spray Gun, Type BX, may be used with either lacquer materials or oil paints. Air and material nozzles are self-aligning, insuring proper co-ordination of air and materials without need of adjustment. Can be regulated to give wide spray for large, flat surfaces or fine, narrow spray for small corners and touch-up work.

The following equipment is furnished with Outfit No. 19A:

Compressor Unit EM-251-RCP or G. E. 251-RXP.
BX Spray Gun with Cup.
2-Gallon Pressure Material Container.
25-foot Main Line Air Hose No. B-957.
15-foot Air Hose (Container to Gun) No. B-955.
15-foot Material Hose No. B-975.

Motor Specifications	Price
60 Cycle, 3 Phase, 220 Volt	$149.50
60 Cycle, 1 Phase, 110 or 220 Volt	149.50
Direct Current, 110 or 220 Volt	151.75
25 Cycle, 3 Phase, 220 Volt	157.00
25 Cycle, 1 Phase, 110 or 220 Volt	157.00
Gasoline Engine Drive	179.00

THE LINDE AIR PRODUCTS COMPANY — NEW YORK, N. Y.

Unit of Union Carbide and Carbon Corp.

126 Producing Plants

30 East 42nd Street

627 Warehouse Stocks

In Canada, Dominion Oxygen Company, Ltd., Toronto

District Offices:

Atlanta, Ga., 282 Spring St., N. W.
Baltimore, Md., 532 East 25th Street.
Birmingham, Ala., 1001-13 South 22nd Street.
Boston, Mass., 1017 South Building, 294 Washington Street.
Buffalo, N. Y., 956 Main Street.
Chicago, Ill., Carbide and Carbon Building, 230 North Michigan Avenue.
Cleveland, Ohio, 628 B. F. Keith Building, Euclid Avenue and 17th Street.
Denver, Colo., 2101 Blake Street.
Detroit, Mich., 4-240 General Motors Building, 3044 West Grand Boulevard.
El Paso, Texas, 416 Texas Street.
Houston, Texas, 6119 Harrisburgh Boulevard.
Indianapolis, Ind., Speedway.
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Minneapolis, Minn., 422 Washington Ave., North.
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St. Louis, Mo., 4228 Forest Park Boulevard.
Salt Lake City, Utah, 362 Pierpont Avenue.
San Francisco, Calif., Adam Grant Building, 114 Sansome Street.
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Tulsa, Okla., 524 Exchange National Bank Bldg., 320 South Boston Street.

Everything You Need For Installing Welded Piping

LINDE OXYGEN

Plants and warehouses in all industrial centers make Linde Oxygen available everywhere at minimum transportation cost. It is backed by Linde Process Service to assure its most effective use.



PREST-O-LITE ACETYLENE

Prest - O - Lite dissolved acetylene . . . the standard for well over a quarter of a century... is available from a Prest-O-Lite plant or warehouse near you. Prest-O-Lite is portable, convenient and economical.



OXWELD APPARATUS AND SUPPLIES

The Oxweld line includes suitable blow pipes, regulators, welding rods and supplies for every oxy-acetylene welding and cutting operation. Stocks and service stations are located throughout the country.



UNION CARBIDE

Careful expansion of distributing facilities has made Union Carbide immediately available to every American industry. For more than 30 years it has been recognized as the most economical source of acetylene.





Hundreds of progressive plumbing and heating contractors have adopted the oxy-acetylene process of welding and cutting for making joints in pipe.

Oxwelded joints properly made are as strong as the pipe itself, and as tough and ductile. There are no weak spots in an Oxwelded piping system. It is uniformly strong and permanently leak-proof throughout its entire length. An Oxwelded piping system is in effect one continuous line of pipe.

Heating and plumbing contractors find that they can cut costs of pipe installation from start to finish, by using Oxwelded pipe joints. Oxwelding simplifies design blueprints, reduces weight and eliminates the necessity for heavy permanent supports and temporary scaffolding. Pipe of random lengths can be purchased at a saving and most standard or special fittings can be made by Oxwelding on the job. Oxwelded piping systems usually require less time and labor for installation. Tool expense is often cut in half. Cost of covering welded pipe is always less.

For your guidance in the design and erection of Oxwelded piping systems, Linde has provided several valuable technical and practical booklets. One of these, "Design Standards for Oxwelded Steel and Wrought Iron Piping," explains in detail all the fundamental designs used in Oxwelded steel and wrought iron pipe and includes many helpful charts and tables. Another, "Fabrication of Welded Pipings Designs," explains welding methods and practices for the actual production of welded designs, and furnishes tables for estimating cost.

These booklets are available as part of Linde Process Service, which also provides users of Linde Oxygen, through a staff of practical Service Operators and technically trained engineers, help and instruction in selection of materials, correct welding technique and all other essentials of good welding practice. This Service translates methods proved from a fundamental welding background into the actual needs of the plumbing and heating industry.

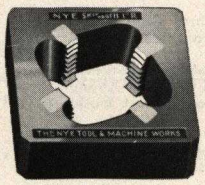
Linde offers plumbing and heating contractors the best of everything for welding and cutting; welding apparatus, gases, supplies. Its nationwide facilities make its service to you prompt, dependable, complete and economical.

If you are interested in the possibilities of Oxwelding as applied to piping, or if you want to know more about Linde Process Service or Linde products, write or telephone the nearest Linde District Office.

THE NYE TOOL & MACHINE WORKS CHICAGO, ILL.

General Office and Factory—4120-4130 Fullerton Avenue

Nye Solid Skip-Tooth Dies
With Threaded Throat



The Nye feature of removing every alternate tooth in back of die to reduce friction, together with the threaded throat feature assures easy starting, and easy cutting. Made of finest tool steel, hardened and tempered in oil.

Stock No.	Dimension of Dies	Sizes	List Price Each
Junior	2 x2 x ¾	⅛, ¼, ⅜, ½, ¾	$ 2.75
0	2 x2 x ½	⅛, ¼, ⅜, ½	2.75
1	2½x2½x ¾	⅛, ¼, ⅜, ½, ¾, 1	3.00
1½	3 x3 x ¾	⅛, ¼, ⅜, ½, ¾, 1, 1¼, 1½	4.00
2	4 x4 x ⅞	½, ¾, 1, 1¼, 1½, 2	5.00
4	5 x5 x1¼	2½, 3	15.00

Made in both Briggs (Am.) and Whitworth (Eng.) standards. Right hand and Briggs dies furnished unless otherwise specified.

Nye Solid Malleable Stocks

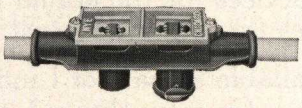


Nye Solid Malleable Stocks are furnished complete with Solid Skip-Tooth Dies with Threaded Throat.

No. 1 Stock equipped with built-in Adjustable Guide for all sizes of pipe ⅛-1-inch.

Stock No.	Dimensions of Dies	Set Contains Dies for Pipe Sizes	Dies Furnished as Extras	List Price Complete
1	2½x2½x¾	½, ¾, 1	⅛, ¼, ⅜	$12.25
1½	3 x3 x¾	1, 1¼, 1½	⅛, ¼, ⅜, ½, ¾	15.75
2	4 x4 x⅞	1¼, 1½, 2	½, ¾, 1	21.50

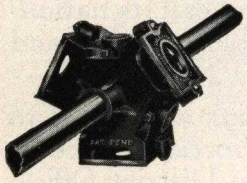
Nye Two-Way Solid Stock



The Nye Two-Way Stock is recommended especially for electricians and where only two sizes of dies are needed. Stock is bored out for ¾- and 1-inch, but a combination of ¾-inch and any other size can be had by using one extra bushing in any size desired. Is equipped with thumb screw so bushing can be easily changed.

List Price, complete with 2 dies..... **$8.25**

Nye Three-Way Solid Die Stock

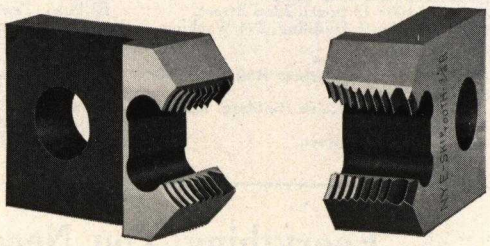


One-piece casting containing three die boxes and three bushings. When specified, dies of smaller size will be furnished.

Stock complete with ½, ¾ and 1 inch dies..... **$15.00**

Stock complete with ⅜, ½ and ¾ inch dies..... **$15.00**

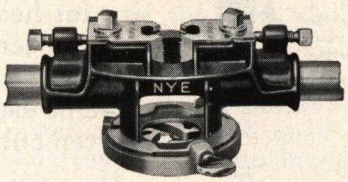
Nye Adjustable Skip-Tooth Dies
With Threaded Throat



Have the Nye Skip-Tooth and Threaded Throat features, as in Nye Solid Dies.

Stock No.	Size, Inches	List Price Per Set
1	⅛, ¼, ⅜, ½	$ 3.00
2	⅛, ¼, ⅜, ½, ¾, 1	3.50
2½	½, ¾, 1, 1¼	4.00
2½	½x¾, D, E	6.00
2½	1x1¼, D, E	6.00
3	½, ¾, 1, 1¼, 1½, 2	5.00
6	2½ to 3, D, E	25.00

Nye Adjustable Stocks

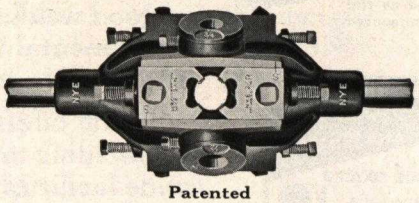


Nye Adjustable Stocks are furnished complete with Adjustable Skip-Tooth Dies with Threaded Throat.

No. 2 Stocks equipped with built-in Adjustable Guide for all sizes of pipe ⅛-1-inch.

Stock Number	Set Contains Dies	Dies Furnished as Extras	List Price Complete
2	½, ¾, 1	⅛, ¼, ⅜	$14.00
2½	¾, 1, 1½	½	20.00
3	1¼, 1½, 2	½, ¾, 1	21.50

Nye Three-Way Adjustable Die Stock



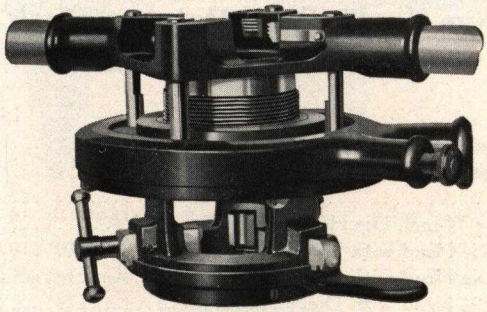
Patented

A one-piece casting holding three sets of Nye No. 2 Armstrong pattern dies and three separate bushings. Unless specified ½, ¾ and 1 inch dies furnished.

List Price

Stock complete with three dies and bushings... **$18.50**

Nye Receding Stocks



Nye No. 1A Receding Stock

With Adjustable Guide

The rugged construction and few working parts account for the simplicity and durability of the Nye Receding Die Stocks.

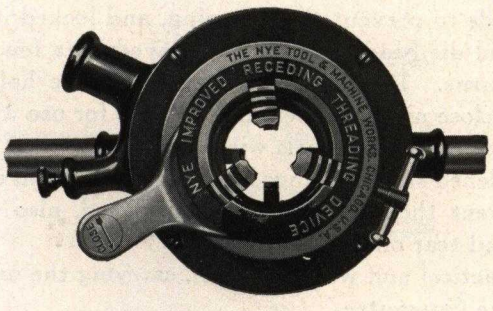
Equipped with Self Centering Guide that does away with loose bushings and set screws, they work easily and efficiently.

The No. 1 and 1A Stocks are identical except that the No. 1A is equipped with a ratchet for use where space is restricted.

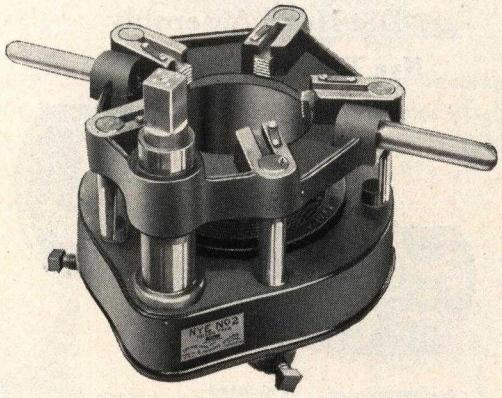
Both Stocks have a capacity of from 1 to 2 inches.

Can be furnished less Adjustable Guide, but with regular bushings and set screws if desired.

	List Price
No. 1 Stock—Complete	**$24.00**
No. 1-A Stock—Complete	**30.00**



The above clearly illustrates the adjustable self-centering guide furnished as standard equipment with Nos. 1 and 1-A Stocks.



Nye No. 2 Receding Stock

Improved
Capacity 2½ Inches to 4 Inches Inclusive

This tool has the same rugged construction as the No. 1 and No. 1-A Nye (Receding) stocks. On account of its geared feature it is easily operated by one man. A ratchet handle and a spider hub threaded for 1-inch pipe is furnished as standard equipment.

List Price, Complete..... **$100.00**

Nye Chasers for Receding Stocks



No. 1 and 1-A



No. 2

Made from high grade alloy steel, hardened and tempered in oil. Cutting teeth milled, not tapped. Fit. No. 1, 1-A and 2 (Receding) die stocks.

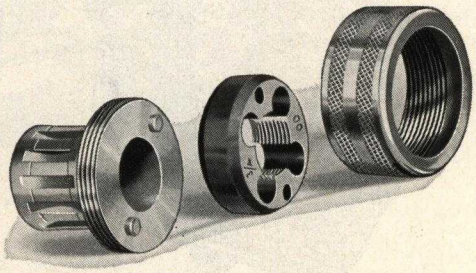
	List Price, Per Set, Each
No. 1 and 1-A—1, 1¼, 1½ and 2-inch	**$2.50**
No. 2—2½ to 4-inch	**8.00**

Nye "Triad" Stocks

Equipped With Solid Round Dies

Die Head Assembly

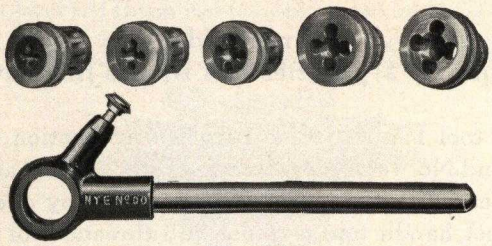
Nye Triad Ratchet Stocks



Patented

Nye No. 50 Triad Ratchet Stock

Capacity ⅛ to ¾-inch



Patented

The solid round dies with which this stock is equipped are a distinct departure from the chaser type dies used in similar stocks now on the market.

The fact that they are solid one piece dies assures the operator perfect alignment and size when threading.

These dies are held by two stationary pins built in the die head to prevent their turning, and locked in by a threaded die head cap, easily removed by a few right-hand turns. No small screws or screw driver necessary.

Dies can be reversed in die holder enabling operator in an emergency to thread close nipples. Ceiling bushings for use with die reversed, furnished gratis with each head.

Tool complete includes ratchet handle and ⅛-inch, ¼-inch, ⅜-inch, ½-inch and ¾-inch die heads with right-hand dies. The ratchet and any one of five die heads can be furnished if complete tool is not desired.

	List Price
No 50 complete, ⅛-inch to ¾-inch	$23.75
No 50 complete, ⅜-inch to ¾-inch	15.75
Ratchet	2.75
⅛-inch Die Head with Die	4.00
¼-inch Die Head with Die	4.00
⅜-inch Die Head with Die	4.00
½-inch Die Head with Die	4.50
¾-inch Die Head with Die	4.50
Dies only, each size	2.75

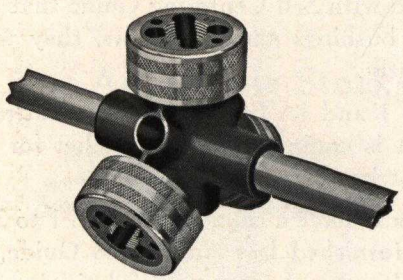
Nye No. 60 Triad Ratchet Stock

Capacity ⅛ to 1¼ Inches

	List Price
No. 60 complete, ½ to 1¼ inches	$22.00
No. 60 complete, ⅜ to 1-inch	22.00
Ratchet	4.00
⅛-inch or ¼-inch Die Heads with Dies, each	4.50
⅜-inch Die Head with Die	4.50
½-inch Die Head with Die	4.50
¾-inch Die Head with Die	4.50
1-inch Die Head with Die	4.50
1¼-inch Die Head with Die	4.50
⅛, ¼, ⅜, ½ or ¾-inch Dies only, each	2.75
1-inch or 1¼-inch Dies only, each	3.50

Nye Three Way Triad Stock

Equipped with Solid Round Dies



Patented

No Kit is complete without this New Nye Three Way Stock. You may completely assemble or disassemble it by hand. (No screws or screw driver necessary). A time and labor saver.

Equipped with the popular Nye Triad Solid Round Dies, held in place by two stationary pins built in the die heads to prevent their turning, and locked in by a threaded die head cap, easily removed by a few right-hand turns. Dies may be reversed in die holder to thread close nipples. Ceiling Bushings for use with die reversed, furnished gratis with each head.

Hardened steel bushings built permanently in casting to prevent their being lost or misplaced, also reduce wear and tear on the stock.

A practical and well built tool, carrying the unqualified Nye Guarantee.

	List Price
Stock complete with ⅜, ½ and ¾-inch dies	$12.00
Stock complete with ½, ¾ and 1-inch dies	13.00
Extra Dies, ⅜, ½ and ¾-inch, each	2.75
Extra Dies, 1-inch	3.50

Nye Ratchet Reamer

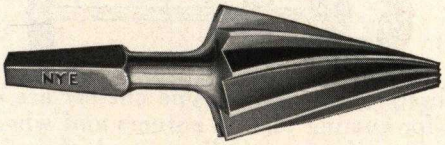


A high class three blade reamer. The blades which are firmly imbedded in body to prevent misalignment, are made of the highest grade alloy steel obtainable. Will ream from ¼ to 3-inch pipe.

List Price **$7.50**

Nye Bit Brace Reamer

Spiral Flute



These reamers made with tapered shank to fit any standard bit brace.

Spiral flutes give a shearing action, assuring operator of a clean and satisfactory job.

Made in three sizes, of high grade tool steel, drop forged.

No.	Capacity	List Price
42	⅛ to 1-inch	**$1.25**
42½	¼ to 1¼-inch	**1.50**
44	¼ to 2-inch	**3.00**

Nye Bit Brace Reamer

Straight Flute

Reams from ⅛ to 1¼-Inch Pipe Inclusive



This reamer is made with a tapered shank which will fit any standard bit brace. Drop forged from the highest grade alloy tool steel and tempered in oil. A very handy little tool having a wide range.

List Price **$1.75**

Nye Union Valve-Nipple Wrench

¾, 1, 1¼—Wrench—2, 1½, ½, ⅜



This wrench is made so that when inserted in a radiator union valve it catches the nipples at the base, avoiding the danger of mashing them. It takes sizes from ⅜-inch to 2-inch inclusive.

List Price **$1.50**

Nye Nipple Wrench Ratchet Handle

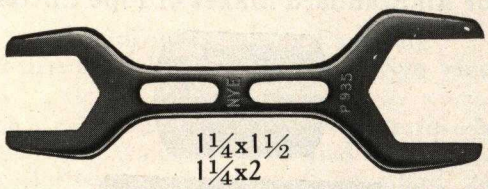


A time and labor saving tool for the steamfitter. For use in connection with the Nye Union Valve-Nipple Wrench. Enables you to get into tight corners.

List Price, Complete with Nipple Wrench **$7.50**

Ratchet Handle Only **6.00**

Nye Closet Spud Wrench



1¼x1½
1¼x2

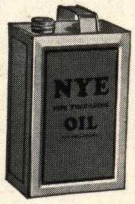
A light handy tool for the plumber, strong enough to stand any strain while in use.

List Price **$1.00**

Nye Pipe Threading Oil

Nye Pipe Threading Oil is an excellent coolant, a good penetrant, and has sufficient body to form an efficient cushion for the die. These qualities assure clean, sharp and accurate threads, and long life for the Die.

Furnished in quantities as listed below.



List Prices

1-gallon lots	per gal.	**$1.60**
5-gallon lots	per gal.	**1.45**
10-gallon lots	per gal.	**1.40**
15-gallon lots	per gal.	**1.35**
30-gallon lots	per gal.	**1.30**
55-gallon lots	per gal.	**1.15**

Nye Drop Forged Pipe Cutter



No. 1A—⅛-1¼-inch No. 2A—¼-2-inch No. 3A—1-3-inch

Can be used as a one or three wheel pipe cutter. Regularly furnished with two rollers and one Nye Thin Blade Knurled Cutter Wheel. Adjustment of the handle screw is made through a case hardened nut which can easily be replaced when worn.

	List Price
No. 1-A complete	$ 5.00
No. 2-A complete	6.00
No. 3-A complete	10.00

Nye Pipe Cutters

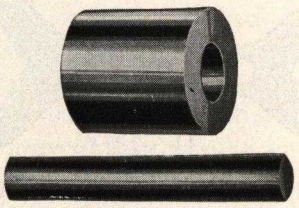


The bottom of No. 2 cutter frame is tapped for ½-inch pipe, allowing the use of an extra handle. Equipped with Nye knurled wheels. Wheels, rollers and pins are larger than on other cutters.

	List Price
No. 1—Cuts ⅛ to 1¼-inch pipe	$ 3.75
No. 2—Cuts ½ to 2-inch pipe	5.75

Nye Pins and Rollers

For All Standard Makes of Pipe Cutters



List Price of Cutter Pins

Per doz.	No. 1	No. 2	No. 3	No. 4	No. 5
Barnes Type	$1.00	$1.00	$1.00	$2.00	$2.00
Saunders Type	1.20	1.20	1.80	1.80	1.80
Nye Type	1.20	1.80	.....	.....	.....
Armstrong Type	1.20	1.20	1.80	.....	.....
Holland Type	1.20	1.20	1.80	.....	.....
Nye Pins made to fit Trimo Pipe Cutters	1.00	1.00	1.00	.....	.....

List Price of Cutter Rollers

Each	No. 1	No. 2	No. 3	No. 4	No. 5
Nye Type	$0.24	$0.50	.....	.....	.....
Saunders Type	.24	.32	$0.50	$0.50	$0.60
Armstrong Type	.25	.30	.50	.....	.....
Holland and Standard	.24	.32	.50	.....	.....
Nye Cutter Rollers made to fit Trimo Pipe Cutters	.25	.25	.50	.....	.....

Nye Saunders Pattern Pipe Cutter

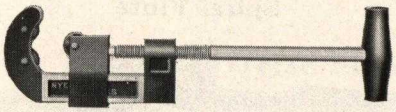


The Nye Saunders type pipe cutter is equipped with Nye knurled wheels. All parts are interchangeable.

Cutter Number	Cuts Pipe	List Price Each
1	⅛ to 1-inch	$ 3.00
2	1 to 2-inch	4.50
3	2 to 3-inch	11.00
4	2½ to 4-inch	18.00
5	4 to 6-inch	28.00

Nye Three-Wheel Pipe Cutter

Barnes Type
Equipped with Three Nye Knurled Cutter Wheels

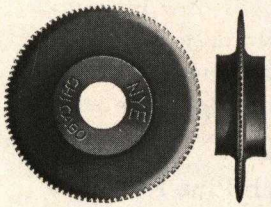


Nye three-wheel Barnes type cutters are especially designed for cutting pipe in corners and where cutters cannot be revolved entirely around the pipe. The frame is made of certified malleable castings. The pins are hardened. Parts are interchangeable with other cutters of the same pattern.

Cutter Number	Cuts Pipe	List Price Each
1	⅛ to 1-inch	$ 4.50
2	½ to 2-inch	6.00
3	1½ to 3-inch	10.00
4	2½ to 4-inch	20.00
5	4 to 6-inch	30.00
6	6 to 8-inch	40.00

Nye Thin Blade Cutter Wheels

Fit All Standard Makes of Pipe Cutters



Made from high grade alloy steel, hardened and tempered in oil. Blades less than ⅛-inch thick and practically straight from hub to cutting edge. Made both knurled and smooth-edged.

List Prices

	Each		Each
No. 1 Barnes	$0.50	No. 5 Saunders	$1.10
No. 2 Barnes	.60	No. 1 Armstrong	.50
No. 3 Barnes	.80	No. 2 Armstrong	.60
No. 4 Barnes	1.00	No. 3 Armstrong	1.10
No. 5 Barnes	1.10	No. 1 Nye	.70
No. 1 Saunders	.50	No. 2 Nye	.80
No. 2 Saunders	.60	No. 1 Holland	.50
No. 3 Saunders	1.10	No. 2 Holland	.60
No. 4 Saunders	1.10	No. 3 Holland	1.10

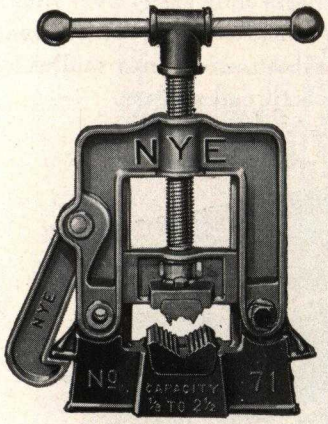
Nye Cutter Wheels Made to Fit Trimo Pipe Cutters

No. 1.....$0.60 No. 2.....$0.60 No. 3.....$0.90

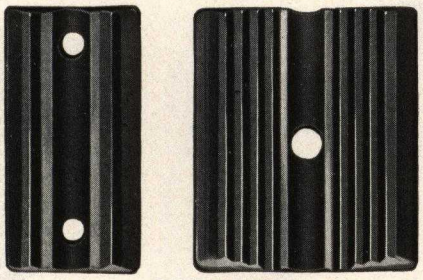
Nye Standard Vises

Equipped With Full Grip Jaws

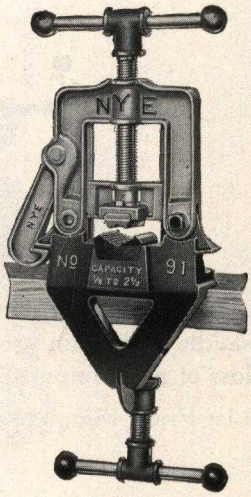
Will hold iron or brass pipe or plated tubing, also short nipples without danger of marring.



NYE
Self Locking Vise



100 Per Cent
More Gripping Surface



NYE
Clamp Kit Vise

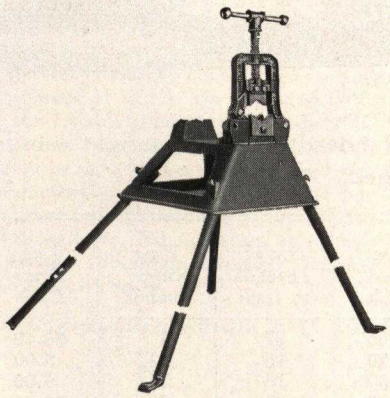
No.	Pipe	List Price Vise Complete	List Price Extra Jaws per Set of Two
700	⅛ to 1½ inches	$ 3.60	$1.50
70	⅛ to 2 inches	4.25	1.75
71	⅛ to 2½ inches	5.00	1.75
72	¼ to 3½ inches	7.50	2.50
73	½ to 4½ inches	11.00	3.50

No.	Pipe	List Price Vise Complete	List Price Extra Jaws per Set of Two
900	⅛ to 1½ inches	$4.50	$1.50
90	⅛ to 2 inches	5.00	1.75
91	⅛ to 2½ inches	6.50	1.75

Nye Vise Stand with Pipe Bender

Furnished With or Without Nye Vises

Frame a one-piece malleable casting.
No parts to jar loose or get lost.
Slotted to accomodate standard makes of vises.
Bender can be used with open-side vise or bench vise. Standard equipment includes four legs—two with malleable feet drilled for lag screws, two with pointed ends well spread out for firm foundation.



	List Price
Complete without Vise	$18.00
Complete with No. 10 Self-Locking Vise	23.00

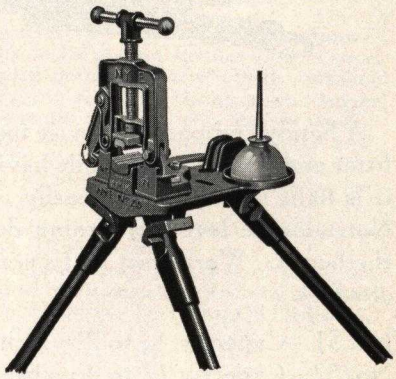
Nye No. 25 Vise Stand

Folding Type, for Carrying
Furnished With or Without Nye Vises

Made of certified malleable iron with outer edges reinforced by a continuous apron tied with cross rib in center, slotted to accommodate standard makes of vises. No drilling necessary.

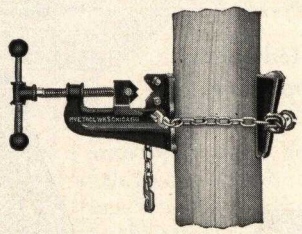
The legs are made of 1-inch standard pipe, threaded to fit sockets permanently attached to stand. They may be folded without removing or loosening any bolts, a swing locking member being provided, which automatically engages projectors on the legs, holding them in spread position until released for folding.

A pipe rest built permanently on the stand, acts as a pipe bender, arranged to bend up to and including ¾-inch pipe or conduit.



	List Price
Complete without Vise	$18.00
Complete with No. 10 Self-Locking Vise	23.00

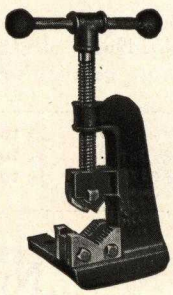
Nye Post Chain Vise



With new wedge attachment. Made so that wedge, saddle and chain are one complete unit, which makes loss of parts impossible.

List Price, complete with 40-inch Steel Chain.... **$9.50**

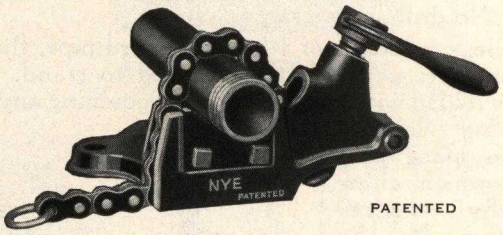
Nye Bench Pipe Vise



Upper jaw is v-shape and acts like a swivel. Jaws are of tool steel, hardened and tempered in oil. The long screw is made of cold-rolled steel. Takes sizes from ⅛ to 2-inch.

List Price..... **$6.00**

Nye Chain Vise



PATENTED

A handy compact little vise for the Plumber, Steamfitter and Electrician. While having maximum strength it is light in weight and easily carried in the tool kit. Note double lever tightening device operating above the bench. Works fast and smoothly with a minimum of effort.

No. 51—Capacity ⅛ to 2½ inches..... List **$ 7.00**
No. 52—Capacity ¼ to 4 inches..... List **15.00**
No. 53—Capacity ¼ to 6 inches..... List **27.00**

Nye Steel Tool Chests

Made of 1/16-inch sheet steel entirely reinforced with 2½-inch oak cleats.

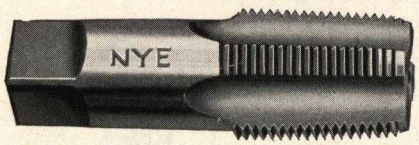
Heavy steel skids make chests slide easily over rough surfaces and prevent wear. Lid held down at front corners with ½-inch bolts which screw into malleable iron corners having a ¾-inch thread surface.



Equipped with six heavy handles chained lock and keys. Chest is enameled in olive green with cleats in natural color. Furnished with one sliding drawer.

No.	Depth Inches	Width Inches	Length Inches	List Price
1	11	12	24	**$26.00**
2	14	15	30	**35.50**
3	16	17	36	**39.00**
4	19	20	42	**45.50**

Nye Quality Pipe Taps

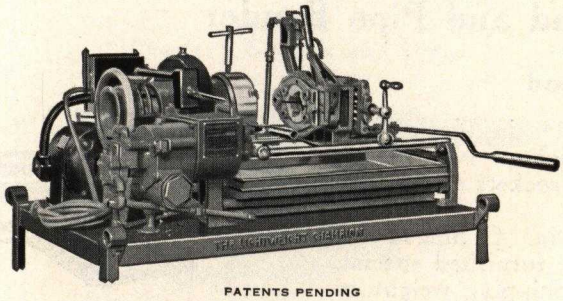


Briggs standard (N. P. T.) right hand taper pipe taps furnished.

Pipe Sizes Inches	List Price Each	No. of Threads to Inch	Pipe Sizes Inches	List Price Each	No. of Threads to Inch
⅛	**$1.00**	27	1	**$4.40**	11½
¼	**1.20**	18	1¼	**5.00**	11½
⅜	**1.60**	18	1½	**6.60**	11½
½	**2.00**	14	2	**10.00**	11½
¾	**2.80**	14			

NYE Portable Power Machines

All Gear Driven—No Belts or Chains



PATENTS PENDING

Lightweight Champion

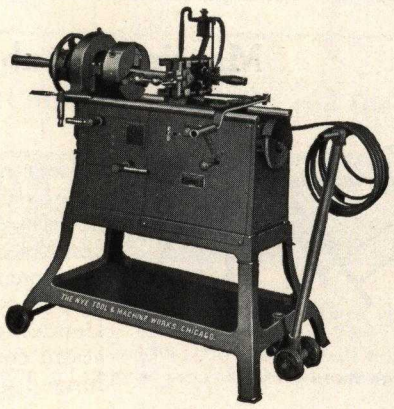
Capacity ¼ to 2 Inches

Prices

Machine with Universal Motor, less dies but including Cutting Off Tool and Reamer.....Net **$275.00**

Machine with A. C. Motor, less dies but including Cutting Off Tool and Reamer.....Net **299.00**

Machine with Gasoline Engine, less dies but including Cutting Off Tool and Reamer.....Net **299.00**



No. 100—Capacity ¼ to 2 Inches

Price

Machine with built-in truck, less dies but including Cutting Off Tool, Reamer and Grinding Wheel....Net **$425.00**

No. 200—Capacity ¼ to 2½ Inches

Price

Machine with built-in truck, less dies but including Cutting Off Tool, Reamer and Grinding Wheel....Net **$475.00**

Nye Portable Power Machine Accessories

Adjustable Quick-Opening Die Head with Ring Type Dies ½ to 2 inches	Net	**$75.00**
Adjustable Quick-Opening Die Head with Ring Type Dies ½ to 2½ inches	Net	**85.00**
Extra Ring Type Dies for Die Heads ½ to 2 inches, each	Net	**6.00**
Extra 2½-inch Ring Type Die	Net	**10.00**
Solid Square Dies, 4x4 Block, ½ to 2 inches, each	Net	**3.50**
Solid Square Die, 5x5 Block, 2½-inch with Adaptor	Net	**15.00**
Universal Drive Shaft for use with Stocks up to 12 inches	Net	**25.00**
Portable Stand for Light Weight Champion Machine	Net	**15.00**
Tripod or Pipe Support	Net	**15.00**
Nipple Chuck containing 2-inch Adaptor	Net	**25.00**
Adaptors for Nipple Chuck, ½ to 1½ inches, each	Net	**5.00**
Auxiliary Reamer for use with Quick-Opening Die Head	Net	**5.00**
Auxiliary Reamer for use with Solid Square Dies	Net	**4.00**

Above Contracting Plumbers Cost F. O. B. Chicago

Distinctive Features

Nye Power Machine are an important advance in portable power threading equipment, embodying several new and distinctive features—most prominent of which are the patented quick-opening die head, using the trouble proof ring type die (NO CHASERS) and floating Saunders type pipe cutter (one wheel, two rollers), operating similarly to power wheel cutters used by all large pipe and nipple manufacturers. These machines are powerful enough for any work and yet portable enough to be taken to the average job. The No. 100 and No. 200 machines equipped with built-in truck, the Lightweight Champion furnished if desired with heavy stand fitted with special casters.

Lightweight Champion furnished with A. C. Motor—Selective Speed—two forward and two reverse. With Universal Motor—variable speed, automatically increasing on smaller sizes of pipe, and retaining necessary speed on larger sizes. With Gasoline Engine—two speeds forward—no reverse. Owing to gas engine being non-reversible, quick-opening die head only can be used.

The No. 100 and No. 200 Machines equipped with 1 H. P. REVERSIBLE MOTOR, 1725 Rev. per Min. Alternating Current 110-220 Volts, 60 Cycles (25-30 and 50 cycles or Direct Current 110 or 220 Volts on application).

Entire transmission and all bearings except motor bearings run in oil furnished with machine. (No oil cups).

Geared type oil pump delivering continuous flow of oil to die. Oil returns to reservoir strained of all chips and scale by a removable chip pan. (One gallon of Nye Pipe Threading Oil furnished,)

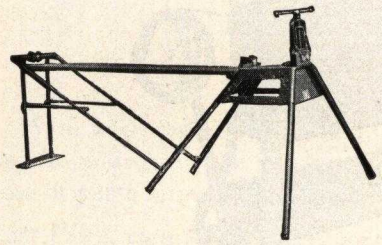
Important

Give Complete Motor Specifications When Ordering

H. P. MARTIN & SONS — OWENSBORO, KY.

801 West 12th Street

Martin Portable Vise Stand and Pipe Bender

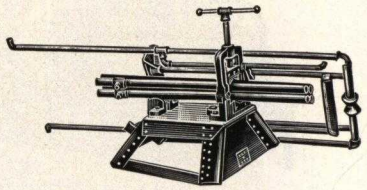


Large Stand Set Up

Large Stand

Legs made of ordinary 1¼ in. black W. I. pipe, each being 45 in. long. No threads necessary as legs slip into sockets at the four corners of stand.

Capacity of chain vise 4 in. Of hinged vise 4½ in. 6 in. vise can be furnished special. Bender capacity 1 in. Shipping weight of stand complete with chain vise 159 lbs.; with hinged vise 175 lbs.



Ready for Transportation

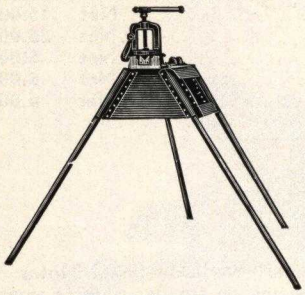
List

Large Stand

No. 2A	Complete with hinged vise	$90.00
No. 2B	Stand with legs and rear support, less vise (drilled for hinged vise)	75.00
No. 2C	Stand with legs and hinged vise, less rear support	71.00
No. 2D	Stand with hinged vise, less legs and rear support	65.00
No. 2E	Stand with legs, less vise and rear support (drilled for hinged vise)	56.00
No. 2F	Stand only, less vise, legs and rear support (drilled for hinged vise)	50.00

Large Stand

No. 2G	Complete with chain vise	$90.00
No. 2H	Stand with legs and rear support, less vise (drilled for chain vise)	75.00
No. 2K	Stand with legs and chain vise, less rear support	71.00
No. 2L	Stand with chain vise, less legs and rear support	65.00
No. 2M	Stand with legs, less vise and rear support (drilled for chain vise)	56.00
No. 2N	Stand only, less vise, legs and rear support (drilled for chain vise)	50.00

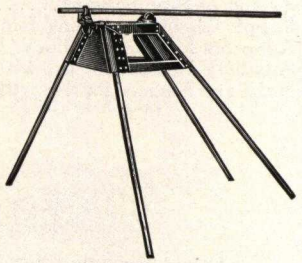


With Hinged Vise

Small Stand

Legs made of ordinary ¾ in. black W. I. pipe, each being 45 in. long. No threads necessary as legs slip into sockets at the four corners of stand.

Capacity of chain vise 2 in. Of hinged vise 2½ in. Bender capacity ¾ in. Shipping weight of stand complete with chain vise 50 lbs.; with hinged vise 54 lbs.



With Chain Vise

List

Small Stand

No. 1A	Complete with hinged vise	$39.00
No. 1B	Stand with hinged vise, less legs	35.00
No. 1C	Stand with legs, less vise (drilled for hinged vise)	31.00
No. 1D	Stand, less vise and legs (drilled for hinged vise)	27.00

Small Stand

No. 1E	Complete with chain vise	$39.00
No. 1F	Stand with chain vise, less legs	35.00
No. 1G	Stand with legs, less vise (drilled for chain vise)	31.00
No. 1H	Stand, less vise and legs (drilled for chain vise)	27.00

Write for Discount Sheet

THE OSTER MANUFACTURING CO. WILLIAMS TOOL CORPORATION

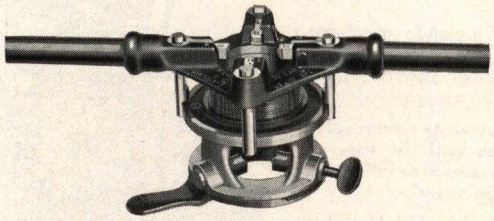
2067 East 61st Place Cleveland, Ohio

Oster Representatives

Boston, Mass., R. Chelstrom, 75 Montclair Ave. (Roslindale)
Chicago, Ill., R. S. Acord, 2004 Home Ave. (Rogers Park)
Fort Worth, Texas, H. C. Gardner, 2227 Warner Road
Kansas City, Mo., J. W. Wells, 6632 Brooklyn Ave.
Los Angeles, Cal., P. E. Willis, 3320 Keystone Ave.
New York, N. Y., H. B. Van Osten, 30 Church St., Room 323-E
Philadelphia, Pa., H. W. Oster, 113 North 3rd St.

OSTER

OSTER "Leader" Stocks and Dies



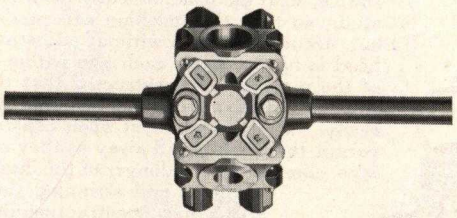
The new Oster "Leader" is built on the well known, easy cutting, leader screw principal and is equipped with all the modern features which improve the quality and general utility of the tool.

Universal guides eliminate the use of bushings and set screws.

Cutting edge of dies hollow ground with lead fully ground to permit easy starting and cutting.

Catalog No.	Range of Sizes Inches	Sets of Dies	List Prices	
			Tool Complete	Extra Dies
No. 1 Plain	1 to 2	4	$19.20	$1.50
No. 1-A Ratchet	1 to 2	4	24.00	1.50

OSTER "Bull Pup" Stocks and Dies

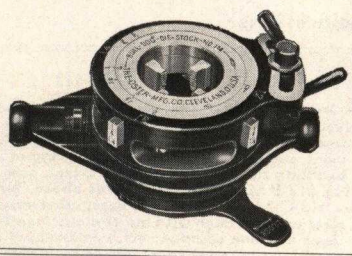


These tools combine all the advantages of the adjustable die stock with the rigidity of the solid die. In the three-way type there are no loose dies or extra guides to carry and the tools are well balanced to handle well on all sizes of pipe.

Catalog No.	Range of Sizes Inches	Sets of Dies	List Prices	
			Tool Complete	Extra Dies
No. 11 3-Way	3/8 to 3/4	3	$16.50	$2.00
No. 11-A 3-Way	1/2 to 1	3	16.50	2.00
No. 01 1-Way Plain	1/4 to 1	5	16.00	2.00
No. 01-R 1-Way Ratchet	1/4 to 1	5	20.00	2.00

OSTER "Bull Dog" Stocks and Dies

The new Improved "Bull Dog" tool has all the advantages of the well known original Oster Bull Dog, plus lighter weight, greater chip clearance and more convenient operation. Quick opening dies eliminate backing off the finished thread. Tools are equipped with universal guides.



Catalog No.		Range of Sizes Inches	Sets of Dies	Extra Dies Per Set	List Prices	
Plain	Ratchet				Plain	Ratchet
111	.....	1/8 to 3/4	3	$2.50	$13.00	.....
112	112-R	1/4 to 1 1/4	3	3.00	17.00	$20.00
113	113-R	1 to 2	2	3.50	22.00	27.00
114	114-R	1/2 to 2	3	3.50	25.00	30.00
114 1/2	114 1/2-R	1/4 to 2	4	3.50	28.00	33.00

OSTER "Chip Chaser" Stocks and Dies



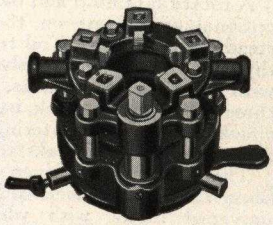
These handy Ratchet die stocks with the quick changing head are ideally suited for use in close quarters. The tools are also made in the three way type No. 000. The heads are designed to allow the chips to fall away as soon as they curl off the pipe and to permit easy oiling.

The carrying case pictured above can be furnished with the No. 00 at $2.00 list extra.

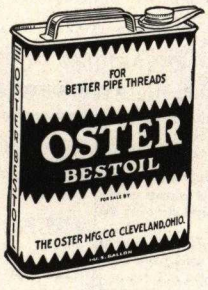
Catalog No.	Range of Sizes Inches	Sets of Dies	List Prices	
			Tool Complete	Extra Dies
No. 00 Ratchet	1/8 to 3/4	5	$18.00	$2.00
No. 00 Ratchet	3/8 to 3/4	3	12.00	2.00
No. 001 Ratchet	1/2 to 1 1/4	4	20.00	3.00
No. 000 3-Way	3/8 to 3/4	3	12.00	2.00

OSTER "Receder" Stocks and Dies

Oster "Receders" are equipped with narrow, easy cutting dies and their leader screws are protected with a patented chip shield which insures years of accurate service. These are high-grade tools, fully adjustable for deep or shallow threads.



Catalog No.	Range of Sizes Inches	Sets of Dies	List Prices	
			Tool Complete	Extra Dies
No. 42-C Plain	1 to 2	4	$18.00	$2.00
No. 42-RC Ratchet	1 to 2	4	22.50	2.00
No. 44 Geared Ratchet	2 1/2 to 4	4	85.00	8.00



OSTER "Bestoil" for Better Threads

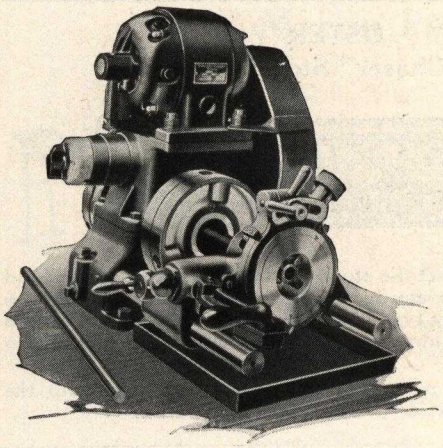
"Oster Bestoil" is a sulphur base cutting oil guaranteed to hold in suspension the greatest possible amount of sulphur, making it the best oil known for threading work. "Bestoil" runs freely in cold weather and has no objectionable odor.

Quantity	Price per Gallon	Total List Price
1 Gallon Cans	$1.50	$1.50
2 Gallon Cans	1.35	2.70
5 Gallon Drums	1.25	6.25
30 Gallon Drums	1.10	33.00
55 Gallon Drums	1.00	55.00

See Following Page

OSTER

"Tom Thumb" Pipe Machines



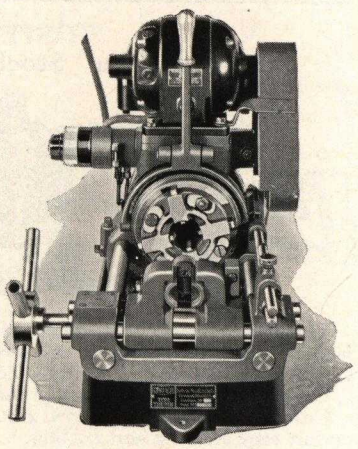
No. 511

No. 511 Rotary Spindle Type
No. 521 Rotary Die Head Type
Capacity ½ to 1¼-Inch

Entirely new and covering a range of sizes never before offered the trade, the Nos. 511 and 521 Tom Thumb Machines meet the requirements of the average shop.

They are very small, compact units covering a range from ½ to 1¼-inch pipe and the rotary spindle type will cut off and ream as well as thread at a very fair production speed.

For nipple and bolt work, the No. 521 Rotary Die Head Machine is ideally suited. Its bolt capacity covers all sizes from ⅜ to 1¼-inch inclusive. The use of Timken Bearings and the famous Domestic (Black & Decker) universal, reversible, variable speed motor are examples of the modern design and construction of the machines which insure years of satisfactory service to their users.



No. 521

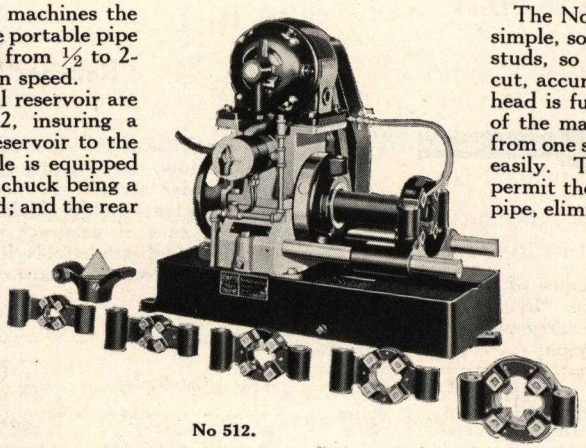
No. 512 Rotary Spindle Type
Capacity ½ to 2-Inch

Like the smaller Nos. 511 and 521 machines the new No. 512 Tom Thumb is a complete portable pipe machine capable of handling all sizes from ½ to 2-inch inclusive at a very fair production speed.

A rotary oil pump and base with oil reservoir are optional equipment on the No. 512, insuring a steady flow of cutting oil from the reservoir to the threading dies. The revolving spindle is equipped with front and rear chucks, the front chuck being a three-jaw gripping chuck, bar operated; and the rear chuck a three-jaw centering chuck operated by hand wheel.

The machine is driven by the same Domestic (Black & Decker) universal motor with which the smaller machines are equipped, the gearing, of course, being somewhat slower to furnish necessary power for the larger sizes.

The modern VV belt method of power transmission from motor to machine insures maximum power with smooth, silent operation. A worm gear drive is used, the worm shaft being mounted in Timken bearings. Both spindle and worm bearings are automatically lubricated.



No 512.

The No. 512 Tom Thumb is equipped with a simple, solid die head, sturdily mounted on rigid studs, so that the machine will produce clean-cut, accurate threads without adjustment. One head is furnished for each size within the range of the machine, so constructed that the change from one size to another can be made quickly and easily. The heads are of open construction to permit the chips to fall away as they curl off the pipe, eliminating the danger of the dies becoming clogged and stripping the threads. This open construction also permits a sufficient quantity of cutting oil to reach the threading dies at all times.

The machine can be furnished either with or without the cutting-off tool which, if furnished, is built in the carriage on which the die heads are mounted.

The reaming operation is accomplished by placing a double edge, flat type reaming tool on the carriage studs after the die head has been swung out of the way.

Prices and Specifications

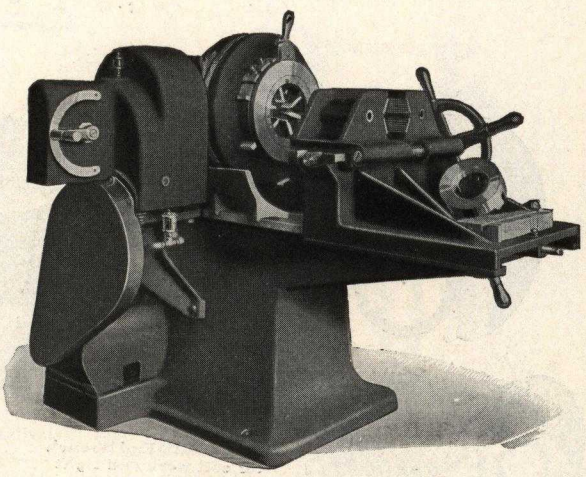
Nos. 511 and 512	List Price
1 No. 511 Rotary Spindle Machine with oil reservoir and pump complete with cutting-off and reaming attachment and pipe dies ½ to 1¼-inch inclusive	$260.00
1 No. 511 Rotary Spindle Machine without oil reservoir and pump complete with cutting-off and reaming attachment and pipe dies from ½ to 1¼-inch inclusive	220.00
1 No. 521 Rotary Die Head Machine complete with oil reservoir and pump and any five individual sets of right-hand U. S. S. Bolt Dies, within the range from ⅜ to 1¼-inch inclusive	340.00
1 No. 521 Rotary Die Head Machine complete with oil reservoir and pump and any two individual sets of pipe dies within the standard range from ¼ to 1¼-inch inclusive, each set threading two sizes	330.00
Extra pipe dies—1 set ¼ and ⅜-inch, 1 set ½ and ¾-inch, 1 set 1 and 1¼-inch, per set	3.00
Pipe dies—⅛-inch, per set	6.00
Bolt Dies—⅜ to 1¼-inch, U. S. S., one set to a size, per set	4.50

No. 512	List Price
1 No. 512-PC Machine complete with pump and base containing oil reservoir; carriage with built-in cutting-off device; reaming attachment and one complete set, consisting of six individual die heads handling the range from ½ to 2-inch pipe	$290.00
1 No. 512-P Machine complete as above, but less cutting-off device	280.00
No. 512-C Machine without base, oil reservoir and pump, but complete with carriage with built-in cutting-off device, reaming attachment and one complete set, consisting of six individual die heads handling the range from ½ to 2-inch pipe	250.00
No. 512 Machine complete as above, but less cutting-off device	240.00
Extra die heads only, less dies	4.00
Extra dies 1½ and 2-inch (High Speed Steel)	6.50
Extra dies 1 and 1¼-inch	3.00
Extra dies ½ and ¾-inch	2.00

OSTER

OSTER

Stationary Pipe Threading Machines



These machines will perform each of the many threading jobs in ordinary use whether the pieces of pipe be long or short, straight or bent, over or under size; also nipples of any length and all thread nipples.

The dies are controlled by a handle and are opened by one movement of the hand while the machine is in motion.

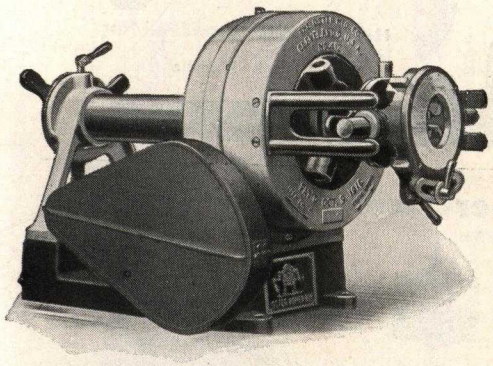
The cutting-off tool is automatically operated.

Machines are furnished complete with countershaft in the belt driven model or motor of standard voltage in the motor driven model, geared oil pump, automatic cut-off, die release, pipe rest (except in No. 302) and complete set of right-hand pipe dies covering all sizes within the range of the machine.

Machines are ideally suited for general purpose maintenance pipe work.

Prices and Specifications

BELT DRIVEN TYPE					MOTOR DRIVEN TYPE				
Catalog No.	Range Inches	Sets of Dies	Weight Pounds	List Price	Catalog No.	Range Inches	Sets of Dies	Weight Pounds	List Price
302-A	¼–2	4	800	$425.00	302-B	¼–2	4	800	$625.00
304-A	1 –4	4	1400	650.00	304-B	1 –4	4	1350	950.00
316-A	1¼–6	6	2000	1000.00	316-B	1¼–6	6	2000	1350.00
308-A	2½–8	6	4000	1600.00	308-B	2½–8	6	4300	2000.00



OSTER

"Power Boy" Pipe Machines

The Oster "Power Boys" are really portable pipe machines, designed to save time and labor either in the shop or out on the job. They are compact and simple in construction and their aluminum alloy frames are light enough in weight to be easily moved about. Practically any die stock from ½ to 2-inch capacity can be driven direct by the No. 412 and with a special drive shaft geared die stocks up to 4-inch capacity can be operated.

No. 414 drives die stocks from ½ to 4 inches direct and from 4½ to 12 inches with a drive shaft. The Domestic universal motor is furnished as standard equipment on the regular Nos. 412 and 414 and the No. 412 can also be furnished with gasoline engine drive.

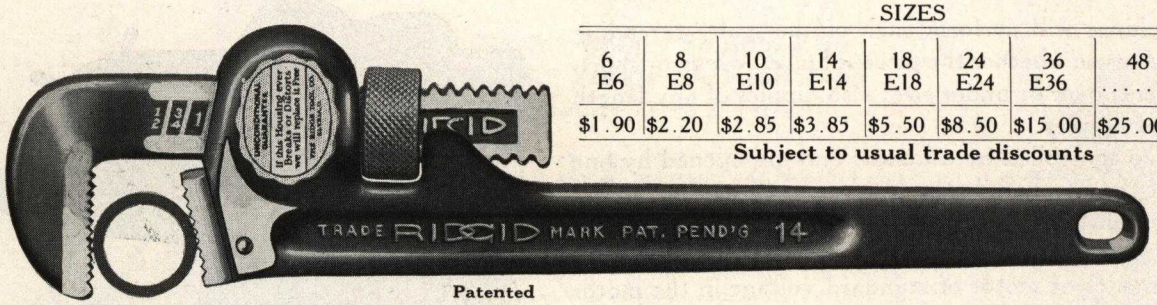
Prices and Specifications

Machines Complete	List Price
No. 412 Machine complete with universal, reversible, variable speed motor of standard voltage and one No. 114 "Bull Dog" Die Stock, capacity ½ to 2-inch	$300.00
No. 414 Machine complete with universal, reversible, variable speed motor of standard voltage, but less all die stocks	525.00
No. 412 Machine complete with 1 H. P. Briggs & Stratton Gasoline Engine and one No. 114 Oster "Bull Dog" Die Stock, capacity ½ to 2-inch	380.00

Accessories	List Price
No. 114 Bull Dog Die Stock, capacity 1 to 2-inch	$20.00
No. 44 Geared Die Stock, capacity 2½ to 4-inch	70.00
All Metal Stand with lift wheels for mounting No. 412 or No. 414	60.00
Auxiliary Drive Shaft for No. 412 for operating 2½ to 4-inch geared die stocks	35.00
Auxiliary Drive Shaft for No. 414 for operating 4½ to 12-inch geared die stocks	45.00

THE RIDGE TOOL COMPANY ELYRIA, OHIO

RIDGID WRENCHES



Patented

SIZES								
6 E6	8 E8	10 E10	14 E14	18 E18	24 E24	36 E36	48	60 .....
$1.90	$2.20	$2.85	$3.85	$5.50	$8.50	$15.00	$25.00	$40.00

Subject to usual trade discounts



The RIDGID End Wrench for coil work and tight places



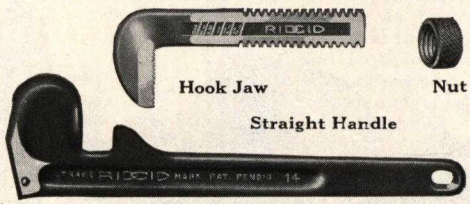
RIDGID Rubber grips furnished on 10 and 14-inch, both styles. Fits any steel handle 10 and 14-inch pipe wrench. Saves the hands. Fine for electricians and use in cold weather. Packed dozens. List $3.60 per dozen for 10-inch and $4.80 per dozen for 14-inch.

RIDGID Wrench Replacement Parts

Size Inches	Handle Straight	Handle End	Hook Jaw	Heel Jaw	Pin	Coil Spring	Flat Spring	Nut	Straight Handle Assembled	End Handle Assembled	Capacity Inches	Weight Pounds
6.....	$ 1.00	$ 1.00	$ 0.65	$0.35	$0.03	$0.03	$0.20	$0.15	$ 1.50	$ 1.50	¾	½
8.....	1.15	1.15	.70	.40	.03	.03	.20	.15	1.65	1.65	1	¾
10.....	1.60	1.60	1.10	.50	.04	.03	.20	.20	2.25	2.25	1½	1¾
14.....	2.20	2.20	1.50	.60	.04	.03	.30	.30	2.85	2.85	2	3¼
18.....	3.25	3.25	2.15	.70	.04	.04	.40	.35	4.00	4.00	2½	5
24.....	5.15	5.15	3.50	.80	.04	.04	.50	.55	6.00	6.00	3	8¼
36.....	10.50	10.50	5.70	1.10	.05	.04	.60	1.10	11.75	11.75	4½	16¼
48.....	17.00	.....	9.00	2.00	.05	.04	.80	2.00	19.50	.....	6	27¾
60.....	20.00	.....	15.00	4.00	.05	.04	1.20	3.00	25.00	.....	8	45



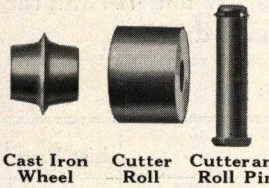
End Handle | Flat Spring | Coil Spring | Pin | Heel Jaw



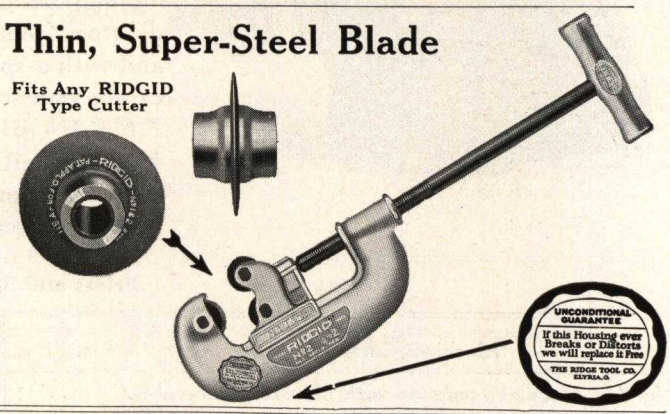
RIDGID Pipe Cutter with New Thin, Super-Steel Blade

Now made with Solid Hub

RIDGID cutter blades are made of thin super-steel, blue in color; 300% more cuts than ordinary cutters, quick, clean, practically no burr. Reinforced hub cast into blade.



Cast Iron Wheel | Cutter Roll | Cutter and Roll Pin

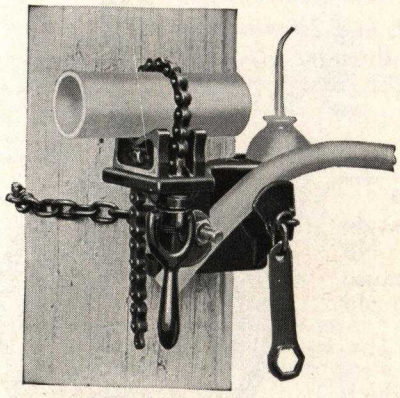


Size No.	Complete	New Style Blades Each	Cast Iron Blades Each	Frames	Screw and Handle	Roll Housing	Rolls	Pin and Clip	Capacity Inches	Weight Pounds
1.....	$ 4.50	$0.35	$0.35	$2.25	$1.25	$1.25	$0.30	$0.20	⅛–1¼	5
2.....	6.00	.35	.35	2.50	1.60	1.25	.30	.20	⅛–2	6
3.....	10.00	.70	.70	3.25	2.50	2.25	.40	.30	1–3	12
4.....	15.00	.70	.70	5.50	3.50	4.00	.40	.30	2–4	15

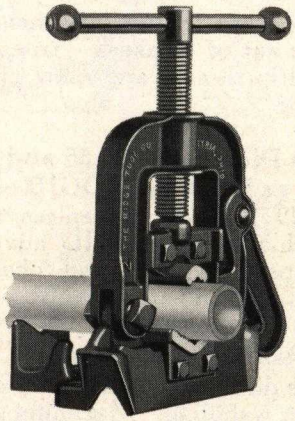
List Prices Subject to Usual Discounts

RIDGID
VISES

A RIDGID Pipe Vise for Every Need

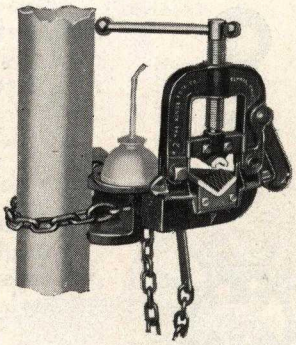


Chain Post Vise P-C-5—Capacity ⅛ to 5 inches. Bending Capacity 1¼-inch pipe.
List Price.....$11.00

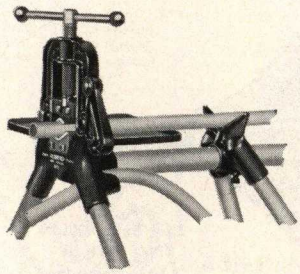


Yoke Bench Vises are of powerful construction. They are equipped with pipe support and practical pipe bender, except B-Y-1¼. Made with no-mar jaws for nickel pipe in 2 and 2½-inch capacity.

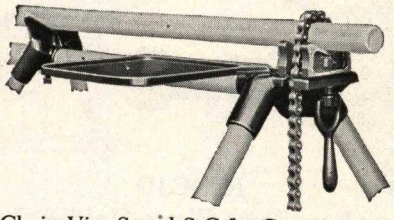
	List Prices	Capacities
B-Y-1¼	$ 2.50	⅛ to 1¼ inches
B-Y-2	4.25	⅛ to 2 inches
B-Y-2½	5.00	⅛ to 2½ inches
B-Y-3½	7.50	⅛ to 3½ inches
B-Y-5	11.00	⅛ to 5 inches
B-Y-6	23.50	⅛ to 6 inches



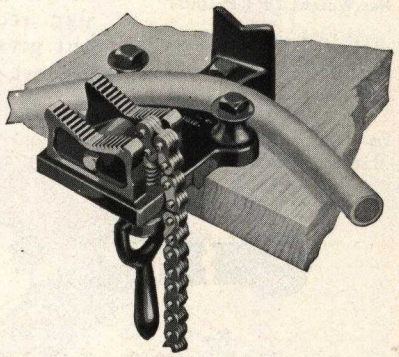
Yoke Post Vise P-Y-2½—Capacity ⅛ to 2½ inches. Bending Capacity 1-inch pipe. Made with no-mar jaws for nickel pipe in 2 and 2½-inch capacity.
List Price.....$9.00



Yoke Vise Stand S-Y-2½—Capacity ⅛ to 2½ inches. Bending Capacity 1-inch pipe. Made with no-mar jaws for nickel pipe in 2 and 2½-inch capacity.
List Price.....$10.00
S-Y-3½—Vise Stand, capacity 3½ inches.
List Price.....$15.00



Chain Vise Stand S-C-5—Capacity ⅛ to 5 inches. Bending Capacity 1-inch pipe.
List Price.....$12.00



Chain Bench Vises

	Capacity Inches	Bending Capacity	List Price
B-C-5	⅛—5	Up to 1 inch	$10.00

The RIDGID Super-Six and Super-Four

The RIDGID Super - Six Pipe Wrench is so designed and constructed that it gives an exceptional amount of leverage. This feature makes the wrench easy to handle and makes it possible for one man to tighten 6-inch pipe without help. One man can also loosen joints that have been rusted, with ease.

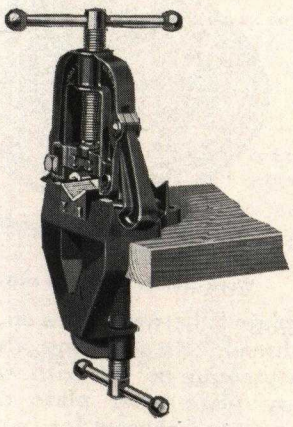
Trunnion and wrench are separate. Trunnion fastens on pipe, jaw of wrench is placed on fitting or pipe, and hole in handle slips on trunnion, and it is ready to go to work.

Super-Four

Now made with a Pipe Capacity of 4½ inches.

Super-Four uses standard 36-inch Wrench parts.

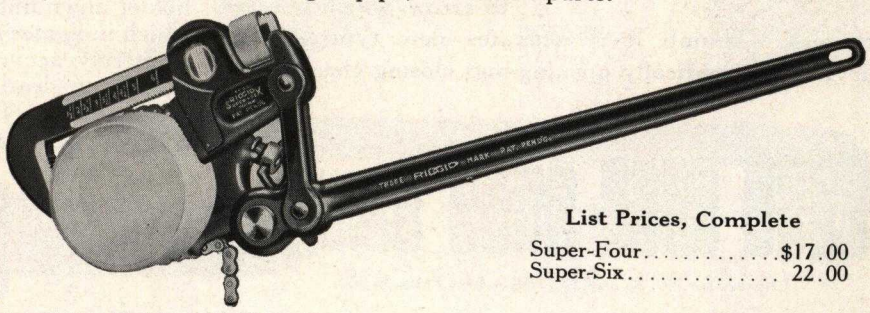
Super-Six uses standard 48-inch Wrench parts.



Kit Vises

Made with no-mar jaws for nickel pipe in 2 and 2½-inch capacity.

	Capacity Inches	List Price
K-Y-1¼	⅛ to 1¼	$3.50
K-Y-2	⅛ to 2	5.00
K-Y-2½	⅛ to 2½	6.50



List Prices, Complete

Super-Four.....$17.00
Super-Six..... 22.00

List Prices Subject to Usual Discount

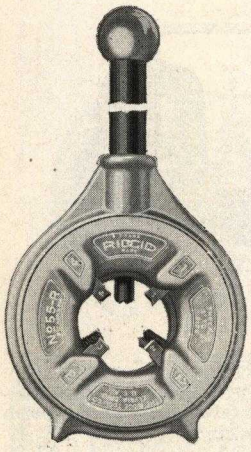
See Following Page

RIDGID
PIPE TOOLS

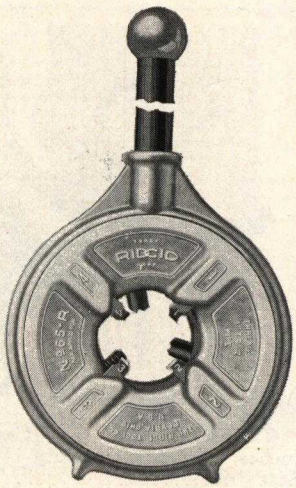
New RIDGID Pipe Threaders

RIDGID Die Stock No. 65 and 65R

Threads four sizes of pipe (1-inch, 1¼-inch, 1½-inch and 2-inch), **with the same set of chasers**—true, accurate threads, over and under size, drip threads and short nipples—iron, cast iron, steel or brass pipe.



No. 55R
List Price $24.50
Net Weight 10⅝ Pounds



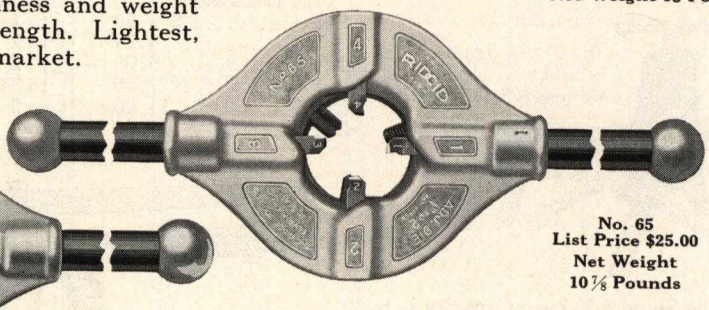
No. 65R
List Price $30.00
Net Weight 15 Pounds

RIDGID Die Stock No. 55 and 55R
Poster Style as Built by RIDGID—No Posts

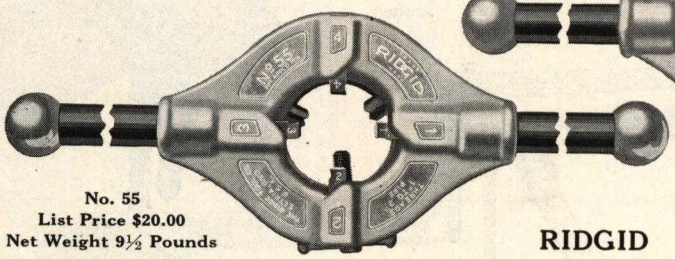
A new RIDGID Threader to replace the old style poster—built with all the RIDGID advantages. No trouble with chips getting behind chasers, because chasers ride on a cam and not against post, as in old style dies.

RIDGID Advantages

Pull of handle is directly over center of chasers, which prevents cocking or wabbling. Maximum chip room and easy application of cutting oil. Handle has ball on the end for better grip. Ratchet stock made with feet so it will stand up. Easy to keep clean because no open parts, chaser slots closed on top. Compact one-piece head design reduces bulkiness and weight but gives great strength. Lightest, neatest die on the market.



No. 65
List Price $25.00
Net Weight
10⅞ Pounds



No. 55
List Price $20.00
Net Weight 9½ Pounds

RIDGID
New Type Work-Holder

Work-holder can be set to size before die is put on pipe. New enclosed centering device; Knurled gauge ring on work-holder is turned till arrow points to size of pipe to be threaded; then die is put on pipe and tightened with one vise screw.

Full directions for use of RIDGID Threader are embossed on drive plate.



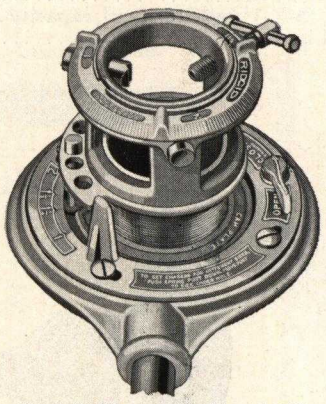
Work-Holder on
No. 55 and 55R

Chasers for No. 55 and 55R

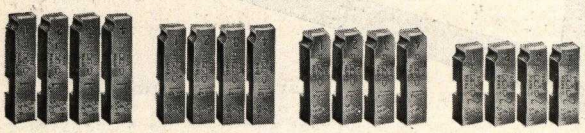
Method of changing chasers is simple and easy: Turn work-holder out until change plate clears post. Move post to arrow, which releases chasers. Thumb lever operates new type ratchet device, automatically opening and closing chasers.

Chasers for No. 65 and 65R

To set chasers for different sizes of pipe, turn work-holder out until change plate clears post. Move post to size desired and turn work-holder down until change plate is between lines on post which indicates standard thread. No adjusting, always positively accurate. Chasers can be set with work-holder on lead screw any place after plate clears setting post. Thumb lever opens chasers for backing off and at the same time reverses the ratchet.



Work-Holder on No. 65 and 65R



Chasers for No. 55 and No. 55R. List Price $1.60



Chasers for No. 65 and No. 65R
(Threads 4 sizes of pipe)
List Price $3.00

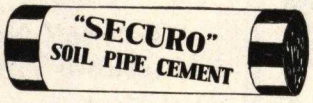
List Prices Subject to Discount

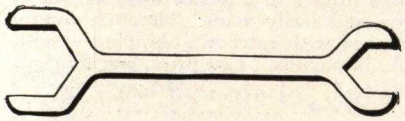
R. M. STARBUCK & SONS, INC. HARTFORD, CONN.

42 Allyn Street

"Securo" Soil Pipe Cement
It is Made in Sticks

For repairing leaks, splits, sand holes, etc., on soil, water and gas pipes. "Securo" penetrates and closes up the finest crack, sets quickly and holds under all pressures.



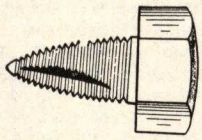


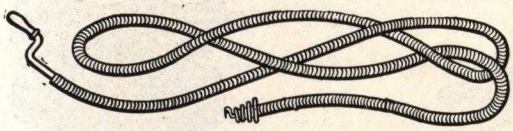
Closet Spud Wrench

For 1¼-inch and 2-inch Spuds and Nuts.

Boiler Repair Plugs
(With Fibre Packing)
For Repairing Leaky Range Boilers

No. 1—5/16-inch diameter. No. 3—7/16-inch diameter.
No. 2—3/8-inch diameter. No. 4—½-inch diameter.

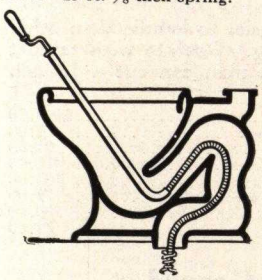




Flexible Waste Pipe Cleaners

These cleaners are of the best steel wire, strong and flexible, and will take the closest bends.

No. 0— 8-ft. 3/8-inch spring.
No. 1—15-ft. 3/8-inch spring.
No. 2—25-ft. 3/8-inch spring.
No. 3—25-ft. 9/16-inch spring.
No. 4—50-ft. 9/16-inch spring.

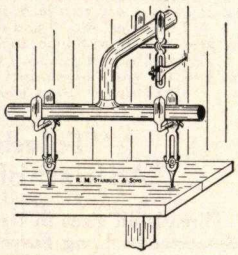


Water Closet Augers

The spring is made of the best steel wire, and works through a casing of heavy brass tubing.

No. 1—3 ft. spring.
No. 2—5-ft. spring.

Adjustable Pipe Holders



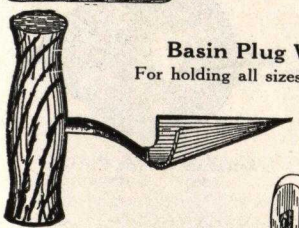
For holding Lead and Brass Work in all positions, while making Wiped Joints.
(3 parts as shown.)



Wiping Cloths

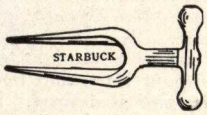
Treated with a preparation which makes them ready for instant use.

BEST HERRINGBONE TICKING
16 ply—Folded either way of grain.
BEST MOLESKIN
No Rough Edges.

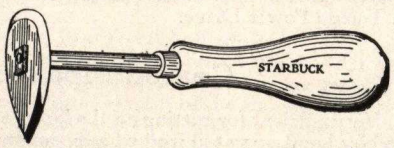


Basin Plug Wrench

For holding all sizes of Basin Plugs.



Tap Borers—N. Y. Pattern



Shave Hooks

Repairs for Plumbers' Furnaces
All Makes

Burners
Coils (with wires)
Coils (without wires)
Coil Cups
Coil Wires
Connecting Pipes
Elbows, Brass
Filling Screws
Gasoline Valves
Handles, with Ears
Handle Ears
Nuts, No. 1
Nuts, No. 2
Pet Cocks (Air)
Plugs
Tees, Malleable
Top Plates, Heavy
Uprights

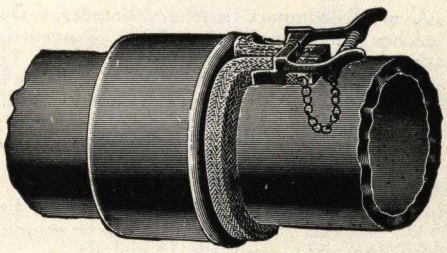
Starbuck "Red Tip" Caulking Tools and Cold Chisels

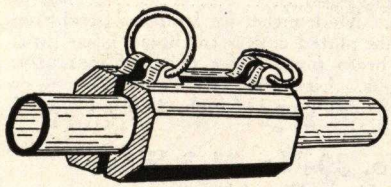
40 Varieties—Tools are ground for inside and outside caulking.
List and Prices on Application.

Asbestos Joint Runners

No. 1—For 2 to 4-inch Pipe.
No. 2—For 4 to 6-inch Pipe.
No. 3—For 6 to 10-inch Pipe.
No. 4—For 10 to 14-inch Pipe.
Larger sizes on application.

JOINT RUNNER CLAMPS
Nos. 1, 2, 3, 4





Polished Pipe Holders

They prevent marring of pipes when cutting and threading.

Used with vise or wrench; 4 sizes—3/8-inch, ½-inch, ¾-inch and 1-inch.

Grafting Wax for Setting Water Closet Bowls

Overcomes the many objections to the use of putty. It never cracks or hardens, but remains flexible indefinitely.

Absolutely non-absorbent, water-proof and air-proof.

It contains no oil, and therefore will not stain wood or tile floors. Used like putty.

Put up in packages, one package being ample for a toilet bowl.



Set-Tite Putty

For setting closet bowls and other plumbing use. Contains no oil, never hardens, no loss, makes flexible joint.

Linen Straps. For all Makes of Strap Wrenches



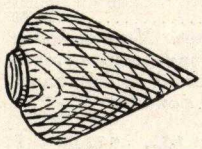
Plumbers' Ladles—Steel Double-Lipped

2½, 3, 3½, 4, 5 and 6-in.

Melting Pots

5-inch.
6-inch.



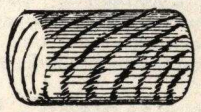


Turn Pins

Large—Medium—Small.

Drift Plugs

1¼, 1½ and 2-inch.



Bending Springs—Billings Type

1¼ - inch, 1½-inch and 2-inch. →





Starbuck Bending Springs
1¼-Inch—1½-Inch—2-Inch

Spring attached to C. I. head with ½-inch thread. By screwing on a ½-inch pipe, spring may be run any distance into pipe. No loop end to twist out of shape.

Send For Net Price Sheets

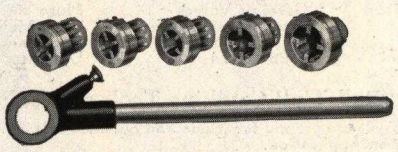
THE TOLEDO PIPE THREADING MACHINE CO. TOLEDO, OHIO

Branch
72 Lafayette Street, New York, N. Y.

TRADE-MARK

Main Office and Factory
1425-1445 Summit Street

"Toledo" No. 00, 11, 12 Ratchet Threading Devices



No. 00—Cap. ⅛ to ¾-inch, incl. List Price.....$19.00

A small compact ratchet threader. Operates very easily. Reaches the corner job. Dies changed instantly. Produces tapered threads. Ratchet lists at $3.00; ⅛, ¼ or ⅜-inch die heads with dies, each $3.00; ½ or ¾-inch die heads with dies, each $3.50. Any combination can be ordered. Shipping weight, complete tool, 9½ pounds.

No. 11—Cap. ½ to 1¼-inch, incl. List Price.....$24.00

This tool is similar in design to the No. 00 except larger. Threads easily. Produces perfectly tapered threads. No. 11 list price: Ratchet, $4.00; ½, ¾, 1 or 1¼-inch die heads with dies, each $5.00. Special ⅜-inch die head can be supplied. List price $5.00. Shipping weight, complete, 13 pounds.

No. 12—Cap. ½ to 2-inch, incl. List Price.....$42.00

Threads ½ to 2-inch pipe. Made either for Iron and Steel Pipe or with special dies and brass plated covers to thread brass pipe. A very desirable tool for brass pipe. Dies changed instantly. Reaches the close corner jobs. List price, Ratchet $6.00; ½ or ¾-inch die head and dies $5.20; 1 or 1¼-inch, $6.00; 1½ or 2 inches, $6.80.

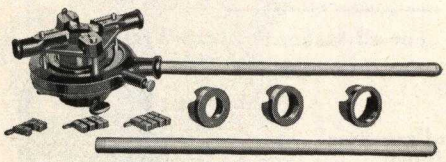
"Toledo" No. 30-No. 31 3-Way Threading Devices



One of the lightest, smallest, and easiest to operate of 3-way threading tools. No. 30 weighs 4¾ pounds, No. 31 but 7 pounds. Dies all "on center" and can be resharpened or replaced at slight cost. Extra dies, one set each ⅜, ½ or ¾-inch, list price, $2.00 each. One set 1-inch dies No. 31, list price, $2.50 each.

No. 30—Cap. ⅜ to ¾-inch, incl. List Price.....$15.00
No. 31—Cap. ½ to 1-inch, incl. List Price..... 18.00

"Toledo" No. 1-No. 1A Adjustable Threading Devices



No. 1—Cap. 1 to 2-inch, incl. List Price...$24.00

Known for years for its ease of operation. A boy can cut a 2-inch thread with it. Adjustable for cutting over or undersize threads as well as standard. Made either in right hand or left hand. Neither tool will do both. Shipping weight, 23 pounds.

No. 1A—Cap. 1 to 2-inch, incl. List Price.....$30.00

Like the No. 1 except equipped with a ratchet. Very desirable for work in close quarters. An easy operating and popular 1 or 2-inch threading tool. Made either in right hand or left hand, neither tool will do both. Shipping weight, 28 pounds.

"Toledo" Improved No. 1B-No. 1BR Adjustable Threading Devices

Similar to No. 1 and 1A tools except for the new type pipe holder. Large wing-head thumb screws with micrometer line guide bars control three broad-faced chuck jaws. Tools are centered easily and quickly and held more rigidly to the pipe. Clean cut, perfectly tapered threads are assured with minimum effort. Excellent for brass or copper, as well as iron or steel pipe. Jaws do not mar polished pipe. Large wing-head thumb screws very easy to tighten. "Super" 1-inch to 2-inch threading tools.

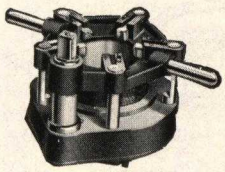
No. 1B—Plain. Cap. 1 to 2-inch, incl. List Price.....$30.00
No. 1BR—Ratchet. Cap. 1 to 2-inch, incl. List Price..... 37.50

"Toledo" No. 10-No. 10A Adjustable Threading Devices

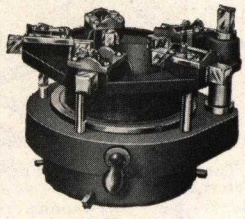
These tools thread all sizes from 1 to 2 inches with one set of dies. Adjustment is positive and easily made. No. 10A exactly like the No. 10 except equipped with ratchet. Shipping weight, No. 10, 25 pounds, No. 10A, 32 pounds. List price, one set right hand dies, $2.75 per set.

No. 10 —Cap. 1 to 2-inch, incl. List Price.....$28.00
No. 10A—Cap. 1 to 2-inch, incl. List Price..... 34.00

"Toledo" Geared Adjustable Threading Devices



No. 2



No. 25

Considerably lighter in weight and easier to handle than other tools of like capacities. Easy operating. Operate with ratchet handle or "Toledo" power drive. One man can cut a 12-inch thread by hand.

No. 2—Cap. 2½ to 4-inch, incl. List Price.....$100.00
List price, 2½, 3, 3½ or 4-inch dies, per set..... 8.00
No. 2½—Cap. 4½ to 6-inch, incl. List Price..... 200.00
List Price, 4½, 5 and 6-inch dies, per set..... 12.00
No. 3—Cap. 4½ to 8-inch, incl. List Price..... 300.00
List Price, 4½, 5, 6, 7 or 8-inch dies, per set..... 12.00
No. 4—Cap. 9 to 12-inch, incl. List Price..... 500.00
List Price, 9, 10 or 12-inch dies, per set..... 20.00

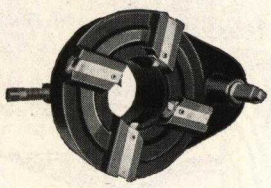
"Toledo" No. 25 Geared Adjustable Threading Device

Threads all sizes in its capacity with one set of dies. Positive adjustment. Long barrel bushings make it easy to center on the pipe. Extra dies per set of 5 segments, list price, $8.00

No. 25—Cap. 2½ to 6-inch, incl. List Price.....$230.00

"Toledo" Pipe Cutters

Exceptionally efficient and desirable pipe cutters for cutting large pipe. No. 40 capacity 2 to 4-inch pipe. No. 80 capacity 4½ to 8-inch pipe. Knives fed automatically. Produce a straight square end cut without burr, and bevel the edge of the pipe if desired. Ratchet handle not furnished unless ordered special. Operated either by ratchet handle or a Toledo Power Drive.



Automatic Pipe Cutters

Geared Pipe Cutters

Very efficient for cutting off the larger sizes of pipe. Four knives, fed by hand-operated feed wheels, cut the pipe off true and square without burr. Operated by ratchet handle or the "Toledo" Power Drive.

Pipe Cutters	Capacity Inches	Shipping Weight Pounds	List Price
No. 40—Automatic—Complete.....	2 to 4	86	$ 60.00
No. 80—Automatic—Complete.....	4½ to 8	195	150.00
No. 250—Geared—Complete.....	2½ to 6	122	80.00
No. 300—Geared—Complete.....	4½ to 8	162	105.00
No. 350—Geared—Complete.....	7 to 10	178	130.00
No. 400—Geared—Complete.....	9 to 12	211	150.00

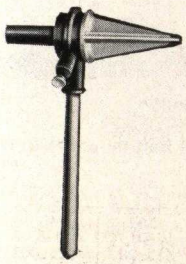
"Toledo" Ratchet Boring Tool



Bores holes through joists and other timbers of buildings for running pipe or conduit. Leaves a neat, workman-like job and operates very rapidly. A great labor saver.

List Price, Boring Tool only, without bits.....$15.00
Expansion Bit, cap. 1¼ to 2½-inch, Net Price.. 9.00

	Net Price		Net Price
2½-inch Solid Bit	$6.00	1½-inch Solid Bit	$3.00
2 -inch Solid Bit	4.50	1 -inch Solid Bit	2.20



Toledo Ratchet Pipe Reamer

High speed steel cutter blades cast solidly in the head, and blades will wear exceptionally well. Ground with proper clearance for each size of pipe, assuring easier cutting. Can be readily resharpened. Hand grip provides an easy natural position for holding the reamer. Parts that become worn may be easily replaced.

Reamer—Complete—Capacity ⅜ to 3-inch. List Price.....$7.00

"Toledo" Portable Work Benches

High grade and desirable portable work benches. Made of steel and malleable iron. Very rigid. Table top bored for various makes of vises and attachments. Legs easily disassembled and reassembled. Any length table top can be furnished on special order. Quotations on request. No. 9 is fitted with a specially designed chain vise for holding 4½ to 12-inch pipe. Table top is 4 feet long and 1 foot wide. Pipe Bender will bend pipe or conduit up to 1 inch inclusive without kinking.

"Toledo" Vise Mounts are portable work benches that fold up like an umbrella. Roller Support holds long lengths of pipe.

	List Price	Shipping Weight Pounds
No. 4 Bench for vise to hold up to 2-inch pipe	$17.00	39
No. 5 Bench for vise to hold up to 4½-inch pipe	20.00	75
No. 9 Bench and vise to hold 2 to 14-inch pipe	100.00	260
No. 18 Bench and vise to hold 2 to 18-inch pipe	210.00	375
Pipe Bender	3.50	5
No. 0 Vise Mount for vise to hold up to 1-inch pipe	12.00	36
No. 1 Vise Mount for vise to hold up to 2½-inch pipe	15.00	49
No. 2 Vise Mount for vise to hold up to 4½-inch pipe	18.00	83
Roller Support	5.00	17

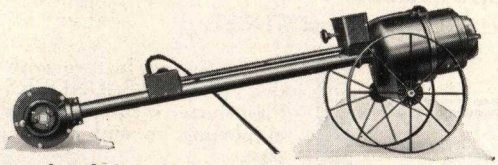


"Toledo" Pipe Vises

Hold tight anything that will go inside the self-centering jaws. Will not crush pipe nor mar pipe with polished surface. Hardened steel jaws may be returned to the factory when dull and recut at cost.

No. 1—⅛ to 2½-inch, inclusive. List Price.....$10.00
No. 2—⅛ to 4½-inch, inclusive. List Price..... 20.00

"Toledo" Power Drives



Operate hand-threading and cutting tools and increase their efficiency many times.

Strictly portable. 20 feet of flexible cable furnished.

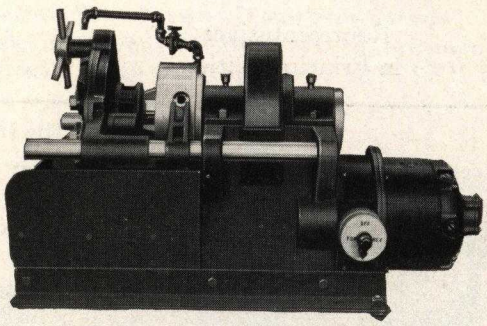
The STANDARD Drives are equipped with A. C. 1½ H. P. or D. C. 1 H. P. motors. Fitted with 2-speed transmission gearing.

The UNIVERSAL Power Drive is similar to the standard except equipped with ½ H. P. universal motor that can be connected to an ordinary lamp socket and operated on any 110-volt current, eithet A. C. or D. C.

SUPER Power Drive Equipped with 2½ H. P. 3 Phase A. C. Motor operates half again as fast as standard drive.

Power Drive	Net Price	Net Weight Pounds	Shipping Weight Pounds
With A. C. Motor, 60 or 50 Cycle, S. P.	$300.00	230	320
With A. C. Motor, 40, 30 or 25 Cycle, S. P.	350.00	255	350
With D. C. Motor	300.00	255	362
With ½ H. P. 110 Volt, Universal Motor	250.00	200	238
"Super" with 2½ H. P. 3 Ph. A. C. Motor only	375.00	275	396

"Toledo" No. 999 Portable Pipe Machine

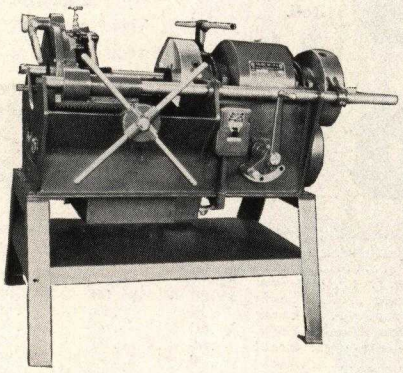


A very compact, portable, ½-inch to 2-inch power pipe machine. Specially designed cutter head with 4 cutter blades. Very rapid cutting. 2-inch pipe cut off in 15 seconds and threaded in 30 seconds. Instant change of dies from one size to another. All controls centralized in forward and reverse switch. The entire mechanism is protected by a safety friction gear. Very sturdy in construction. Net weight is 265 pounds.

Quick-Opening Die Heads can be supplied for No. 999. Greatly increases efficiency of machine. Complete information on request.

No. 999—With Die Heads ½-inch to 2-inch, inclusive. **Net Price**...$275.00
No. 999—With Quick-Opening Die Heads ½-inch to 2-inch, inclusive.
Net Price..... 350.00

"Toledo" No. 1-2-4 Power Pipe Machine



Fastest, easiest controlled, most productive 1 to 4-inch power pipe machine.

Equipped with eight quick-opening die heads—one for each size pipe—instant die change. Cutter head with four knives cuts very rapidly. Reaming easily and quickly accomplished. Two three-jaw Universal Chucks are equipped with wrench throw-out fingers. Gears all run in oil. Six spindle speeds obtained with one clutch lever and gear shifting lever. All steel frame is very strong. Machine is very durable. Bolt dies and additional equipment furnished on special order.

A distinct advancement in design and a pipe machine of high productive capacity. Net weight is but 1,750 pounds.

No. 1-2-4—Cap. 1-inch to 4-inch, incl., complete with 3 H. P., 220-440 volt—3 phase, 60 cycle motor.
Net Price.....$1400.00

"Toledo" 2-inch High Speed Pipe Machine

"Toledo" 2-inch High Speed Pipe Machine like No. 1-2-4 except smaller. Very fast and efficient. Threads, cuts and reams 2-inch pipe in less than 30 seconds. Bolt dies and dies for threading conduit supplied on special order.

2-inch High Speed, cap. ½-inch to 2-inch, incl., complete, equipped with 3 phase, 60 cycle, 220-440 volt motor.
Net Price.....$750.00

TRIMONT MFG. CO., INC. — ROXBURY, (BOSTON) MASS.

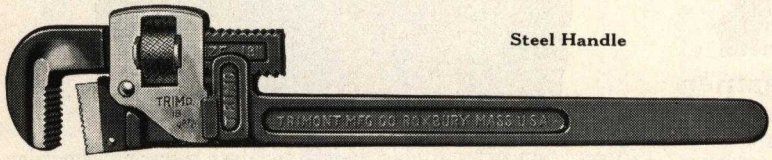
Representatives in Principal Cities

TRADE TRIMO MARK

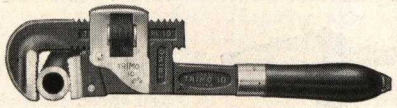
Main Office and Factory 55 to 71 Amory Street

The Improved and Mightier

Trimo Pipe Wrenches and Parts



Steel Handle



Wood Handle

Made with steel handle, 6 to 48 inches long; with wood handle, 6 to 14 inches long; also in narrow jaw type (steel handle only) 6, 8 and 10-inch.

List Prices Subject to Discount

Length Open ... Inches	6	8	10	12	14	18	24	36	48
Takes Pipe ... Inches	⅛–1½	⅛–¾	⅛–1	⅛–1¼	¼–1½	¼–2	½–2½	½–3½	1–5
Price, Complete with Steel Handles ... Each	$1.90	$2.20	$2.85	$3.35	$3.85	$5.50	$8.50	$15.00	$25.00
Price, Complete with Wood Handles ... Each	2.00	2.30	3.15	3.60	4.25	.....	.....	.....	.....
Movable Jaws ... Each	.65	.70	1.10	1.25	1.50	2.15	3.50	5.70	9.00
Nuts ... Each	.15	.15	.20	.25	.30	.35	.55	1.10	2.00
Insert Jaws with Pins ... Each	.50	.55	.65	.75	.85	.95	1.10	1.50	2.00
Frames with Pins ... Each	.45	.55	.70	.75	.80	.95	1.75	2.75	3.50
Spring with Pins ... Each	.03	.03	.03	.03	.03	.04	.04	.04	.04
Extra Frame Pins ... Each	.03	.03	.04	.04	.04	.04	.04	.05	.05
Extra Jaw Pins ... Each	.03	.03	.04	.04	.04	.04	.04	.05	.05
Extra Steel Handles ... Each	1.00	1.15	1.60	1.80	2.20	3.25	5.15	10.50	17.00
Extra Wood Handles with Ferrule ... Each	.23	.25	.30	.35	.36	.....	.....	.....	.....
Nut Guards ... per Pair	.15	.15	.20	.30	.30	.35	.45	.55	.65



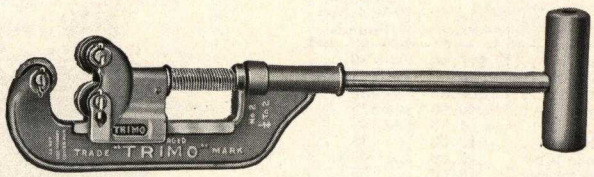
Roll



Nut

TRIMO Pipe Cutters

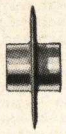
Equipped with TRICROME Silvered Wheels



Knurled Edge Wheel



Plain Edge Wheel



Regularly furnished with two rolls and one cutter wheel, or with three cutter wheels. In ordering specify which is wanted.

Number	1	2	3	4
Cuts Pipe ... Inches	⅛–1¼	¼–2	1–3	2½–4
Price, Complete ... Each	$5.00	$6.00	$10.00	$20.00
Extra Nuts ... Each	.35	.35	.40	.60
Extra Wheels, Smooth-edge ... Each	.60	.60	.90	1.20
Extra Wheels, Teeth-edge ... Each	.60	.60	.90	1.20
Extra Rolls ... Each	.30	.30	.40	.40
Extra Pins with Cotter ... Dozen	1.30	1.30	1.30	2.00

Number	1	2	3	4
Extra Cotter Pins ... Dozen	$0.20	$0.20	$0.20	$0.20
Extra Anti-friction Washers ... Dozen	.60	.60	.60	.60
Extra Roll Blocks ... Each	1.25	1.25	2.25	4.00
Extra Frames ... Each	2.25	2.50	3.25	9.50
Extra Handle Screws ... Each	1.00	1.25	2.00	4.00
Extra Handles ... Each	.50	.50	.50	.60
Extra Roll Block Pins ... Each	.03	.03	.03	.03

Cutter Wheels and Pins made to fit Barnes, Crown and Saunders Pipe Cutters are now available—of TRIMO make and quality. List prices and discounts upon application.

Trimo-Saunders Type Pipe Cutter

The Pipe Cutter with a Spring. Equipped with TRICROME Silvered WHEEL

This TRIMO-SAUNDERS type Pipe Cutter has an exclusive feature consisting of a Spring in the Frame which engages with the Swing Block, causing it to rest against the end of the Screw Rod at all times.



The Spring feature with which this TRIMO-SAUNDERS type Pipe Cutter is equipped saves labor in putting on and taking off the pipe.

List Prices (Subject to Discount)

Number	Cuts Pipe Inches	Complete Cutters (Each)	Wheels (Each)	Rolls (Each)	Pins (Per Doz.)	Block with Wheel (Each)	Handle with Screw
1	⅛ to 1	$ 3.00	$0.50	$0.24	$1.20	$1.25	$1.00
2	1 to 2	4.50	.60	.32	1.20	1.75	1.25
3	2 to 3	11.00	1.10	.50	1.80	2.75	1.75

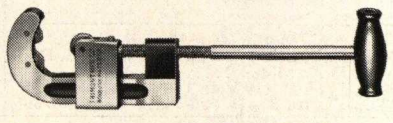


Spring

Trimo-Barnes Type Pipe Cutter

Cutter No.	1B	2B	3B	4B	5B	6B	6½B	7B
List Price ... Each	$4.50	$6.00	$10.00	$20.00	$30.00	$40.00	$45.00	$50.00
Cuts Pipe ... Inches	⅛ to 1	½ to 2	1½ to 3	2½ to 4	4 to 6	6 to 8	8 to 10	9 to 12
Weight Each ... Pounds	3	5	8½	13½	22	27	35	51
List Wheels ... Each	$0.50	$0.60	$0.80	$1.00	$1.10	$1.10	$1.10	$1.10
List Pins ... Dozen	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00
List Body ... Each	1.75	2.60	4.55	9.50	13.75	20.00	23.00	25.00
Slide and Wheel ... Each	.75	1.00	2.00	4.50	7.00	8.50	9.50	11.25
Handle and Screw ... Each	1.00	1.25	2.25	4.50	7.00	9.25	10.25	11.50

A 3-wheel Barnes Type Cutter with TRICROME Silvered wheels.



NEW! TRICROME (silvered) CUTTER WHEELS NEW!

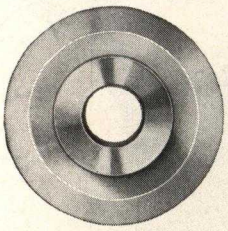
The Silver Wheel with the Red Hub

A thinner, stronger, keener edged wheel to fit Trimo and Barnes, Saunders and Crown Pipe Cutters

Distinguished by their silver bodies and red hubs these new improved Tricrome wheels are made of a new steel alloy and offer a brand new and improved design. Actual tests prove that the new TRICROME wheels last longer and cut easier than the old type wheel.

Wheels	Nos.	1	2	3	4	5	6–6½–7
Trimo	Each	$0.60	$0.60	$0.90	$1.20	.....	.....
Barnes (made to fit)	Each	.50	.60	.80	1.00	$1.10	$1.10
Saunders (made to fit)	Each	.50	.60	1.10	1.10	1.10	.....
Crown (made to fit)	Each	.60	.80	1.10	.....	.....	.....
Pins—							
Trimo	per Dozen	1.30	1.30	1.30	2.00	.....	.....
Barnes (made to fit)	per Dozen	1.00	1.00	1.00	2.00	2.00	2.00
Saunders (made to fit)	per Dozen	1.20	1.20	1.80	1.80	1.80	.....
Crown (made to fit)	per Dozen	1.50	1.50	1.80	.....	.....	.....
Rollers—							
Trimo	Each	.30	.30	.40	.40	.....	.....
Saunders (made to fit)	Each	.24	.32	.50	.50	.60	.....
Crown (made to fit)	Each	.24	.30	.50	.....	.....	.....

Knurled edge and plain edge wheels have same list price. All Prices subject to discount.



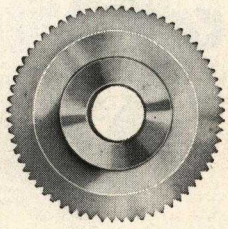
Tricrome Silvered Cutter Wheel Plain Edge

TRICROME wheels for Trimo Pipe Cutters are marked Trimont Manufacturing Co. "T" and size on hub.

TRICROME wheels to fit Barnes are marked Trimont Manufacturing Co. "B" and size on hub.

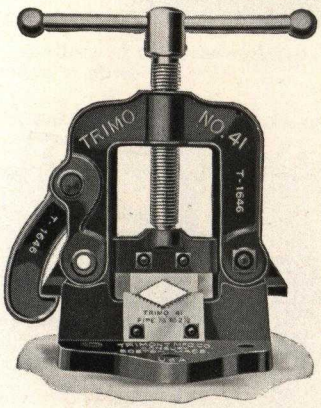
TRICROME wheels to fit Saunders are marked Trimont Manufacturing Co. "S" and size on hub.

TRICROME wheels to fit Crown are marked Trimont Manufacturing Co. "C" and size on hub.



Tricrome Silvered Cutter Wheel Knurled Edge

Trimo Pipe Vises



Trimo Standard Pipe Vise

TRIMO Pipe Vises are equipped with jaws of tool steel, hardened and tempered, having fine milled teeth, thus insuring a good grip on the pipe.

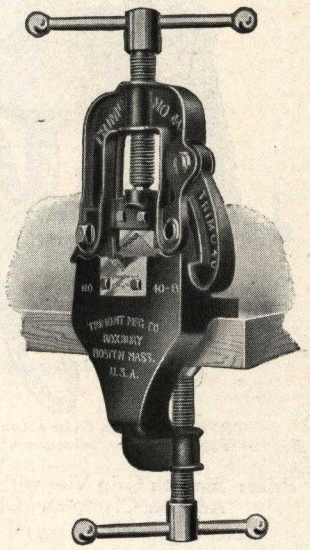
The yoke, frame and base are made of malleable iron. The screw, head and handle are made of selected steel.

The ball ends of the handle are secured by a patent device, giving smoothness for the hand grip.

Two bolts secure each jaw, thus guaranteeing rigidity.

The TRIMO Pipe Vises Combine improved design, workmanship and finish with convenient weight, strength and quick action.

The 40-B TRIMO Vise is made with the apron and is intended as a portable vise. It can be readily clamped to a bench or post without drilling of holes.



Trimo Portable Vise No. 40-B

Prices Subject to Discount

	No. 4000	No. 400	No. 40	No. 41	No. 42	No. 43	No. 44	No. 40-B
Capacity....Inches	⅛–1¼	⅛–1½	⅛–2	⅛–2½	⅛–3½	⅛–4½	⅛–6	⅛–2
Vises, Complete	$2.50	$3.60	$4.25	$5.00	$7.50	$11.00	$23.50	$5.00
Yoke	.60	.90	1.00	1.20	1.80	2.65	5.75	1.00
Base	.95	1.40	1.60	1.90	2.80	4.20	9.00	2.65
Hook	.25	.25	.30	.35	.50	.75	1.60	.30
Top Screw and Handle	.70	1.00	1.20	1.40	2.20	3.00	6.60	1.20
Lower Jaw	.40	.50	.60	.70	.85	1.20	2.00	.60
Upper Jaw	.40	.50	.60	.70	.85	1.20	2.00	.60
Yoke Bolt and Nut	.10	.10	.10	.10	.10	.10	.10	.10
Upper Jaw Bolt and Nut	.10	.10	.10	.10	.10	.10	.10	.10
Lower Jaw Bolt and Nut	.10	.10	.10	.10	.10	.10	.10	.10
Jaw Clamps	.25	.25	.25	.30	.45	.65	1.20	.25
Hook Pin	.10	.10	.10	.10	.10	.10	.10	.10
Base Screw Handle and Clamp	.....	.....	.....	.....	.....	.....	.....	1.10
Weight, Pounds	3	4½	6½	10½	15	22½	43	9½

Special TRIMO Wheels

For Cast Iron or Soil Pipe

Made of High Speed Steel



For Cutting Cast Iron and Soil Pipe

Made of High Speed Steel—Distinguished by a **Green** Hub

Any standard pipe cutter equipped with these special TRIMO High Speed Steel Wheels will cut cast iron or soil pipe quickly and easily. These High Speed Steel Wheels are designed exclusively for cutting cast iron or soil pipe.

They are marked "TRIMO C. I." with size.

Genuine TRIMO pipe cutters, TRIMO Barnes Type Cutters and TRIMO Saunders type Cutters can be furnished equipped with these new C. I. Wheels at slightly additional cost.



For Cutting Cast Iron and Soil Pipe

Made of High Speed Steel

Prices Subject to Discount

Special TRIMO High Speed Steel Cutter Wheels for Cast Iron and Soil Pipe

Number..... Size.....	2 Capacity ½–2 Inches	3 Capacity 1½–3 Inches	4 Capacity 2–4 Inches	5 Capacity 4–6 Inches	6 Capacity 6–8 Inches	6½ Capacity 8–10 Inches	7 Capacity 9–12 Inches
TRIMO	$1.20	$1.80	$2.40	.....	.....	.....	.....
Barnes	1.20	1.60	2.00	$2.20	$2.20	$2.20	$2.20
Saunders	1.20	2.20	2.20	2.20	.....	.....	.....

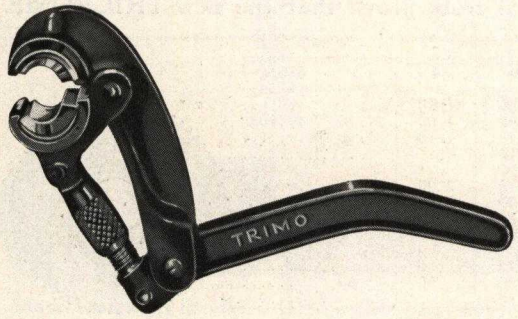
TRIMO C. I. Wheels Distinguished by a GREEN Hub are made to fit TRIMO, Saunders and Barnes Type Pipe Cutters.

See Following Page

NEW TRIMO NEW

(Butt Patent)

Smooth Grip Pipe Wrench

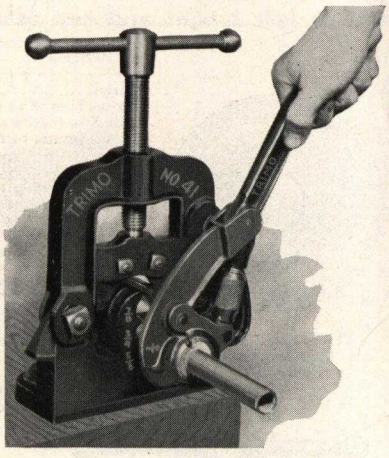


For copper and brass pipe and plated tubing

Does Not Mar

Does Not Crush

The enormous gripping power of the toggle leverage assures a positive grip—yet does not mar or crush the pipe.



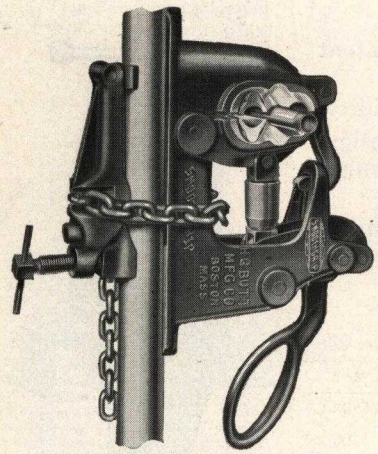
Insert bushings available for use on:

$\frac{3}{8}$", $\frac{1}{2}$", $\frac{3}{4}$" pipe
$\frac{1}{2}$", $\frac{5}{8}$", $\frac{3}{4}$" tubing

Price of wrench **with any three sets** of bushings $6.00
Extra bushings per pair in any of the above sizes ..... .75
Subject to discount

TRIMO Smooth Grip Vise

(Butt Patent)



TRIMO Smooth Grip attached to Pipe by use of Adapter Clamp

For copper, brass and plated tube and pipe

Does not mar—nor crush the pipe

One push of the handle and the positive gripping power of the adjustable toggle leverage holds the pipe without slipping.

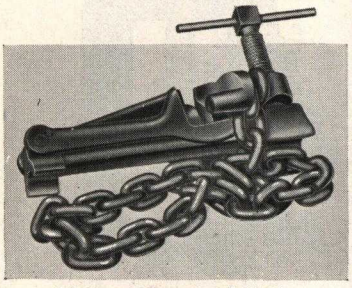
Lift the handle and the vise is open.

This smooth grip vise may be used in either horizontal or vertical positions on brass, plated or rough pipe. Quick and simple to operate.

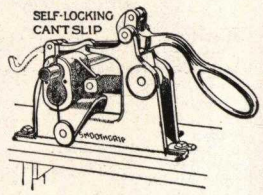
This vise may be bolted to a bench or post, or attached to pipe by using adapter clamp.

Takes following sizes:

$\frac{3}{8}$", $\frac{1}{2}$", $\frac{3}{4}$" I. S. Pipe
$\frac{3}{4}$" O. D. Tubing
1" and 1$\frac{1}{4}$" Pipe



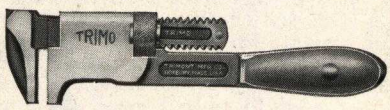
Adapter Clamp and Chain



TRIMO Smooth Grip attached to Bench

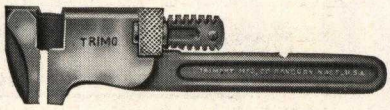
Price: Smooth Grip Vise with jaws for all above sizes $12.00
Adapter Clamp and Chain 3.00
Subject to discount

Semi-Bright Trimo Monkey Wrenches



Monkey Wrench—Knife Handle

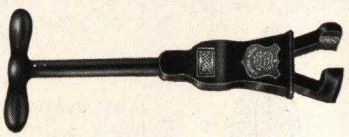
Knife handle made in sizes 6 to 15 inches; iron handle, 6 to 21 inches.



Monkey Wrench—Iron Handle

Length, inches	6	8	10	12	15	18	21
Wrench opens, inches	1	1 5/16	1 3/4	2 1/4	2 5/8	3 1/4	4 1/8
Price, complete, semi-bright, per dozen	$15.00	$18.00	$22.00	$28.00	$38.00	$48.00	$58.00
Extra Jaws with Pin, each	.75	.90	1.10	1.25	1.90	2.03	2.46

Trimo Basin Wrenches

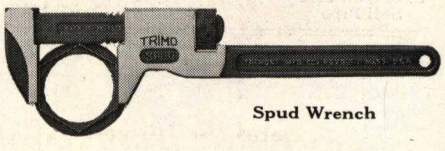


Length, inches	10
Opens, inches	1 3/4
Price, complete, per dozen	$15.00

Trimo Adjustable Spud Wrench with Narrow Jaws

Made in 12-inch size only. Same pattern as the Regular Monkey Wrench, but is made thinner for close-quarter work, with an opening of 2$\frac{5}{8}$ inches.

Thickness of Jaws $\frac{5}{8}$-inch. Depth 1$\frac{7}{8}$-inch. Price same as regular 12-inch Monkey Wrench.



Spud Wrench

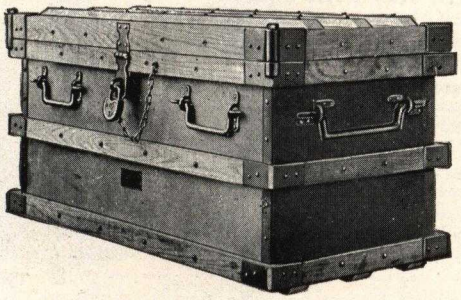
All Prices Subject to Discount

THE VANDERMAN MFG. CO. WILLIMANTIC, CONN.

Office and Foundry—Mansfield Avenue

Vanderman's Patented Steel Tool Chests and Specialties

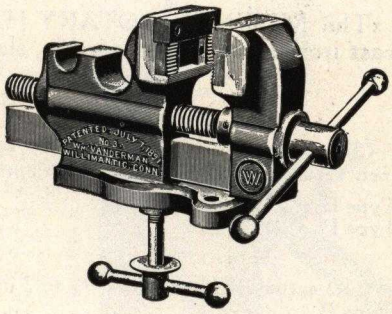
Patented Steel Tool Chests



Style A

Made in 12 different styles and 40 sizes. Special styles and sizes made to order.

Vanderman's Improved Combination Bench Pipe Vises



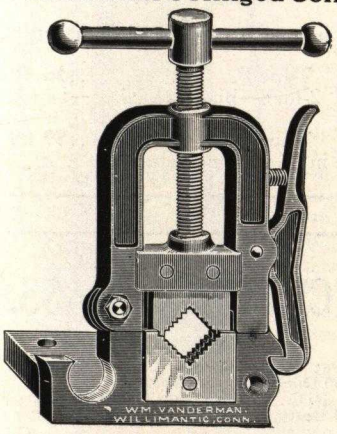
Three combinations in one. Constructed with steel sliding bar.

No. 0 holds pipe from ⅛-inch to 2½ inches, with bending form for bending pipe up to 1 inch.

No. 1 holds pipe from ⅛-inch to 7 inches, with bending form for bending pipe up to 1½ inches.

No. 3 holds pipe from ⅛-inch to 10 inches, with bending form for bending pipe up to 2 inches.

Vanderman's Hinged Combination Malleable Iron Pipe Vises with Bending Forms



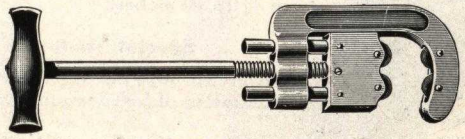
Two bending forms are part of this vise. The form on left of vise has a flat surface on top, which makes a handy place to hammer on. Jaws are made from tool steel and can be sharpened or duplicated.

No. 1—Takes ⅛ to 1¼-inch pipe, weight 6 pounds.
Price.....$.....

No. 2—Takes ⅛ to 2-inch pipe, weight 10 pounds.
Price.....$.....

No. 3—Takes ⅛ to 2½-inch pipe, weight 18 pounds.
Price.....$.....

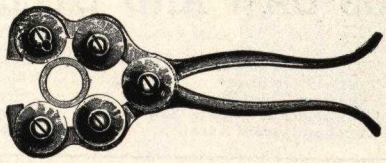
Vanderman's Four-Wheel Pipe Cutter



Especially adapted for C. I. soil, water and W. I. pipe.

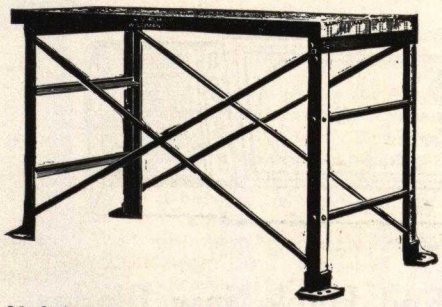
No. 1—Cuts from 2 to 4½ inches.....$.....
No. 2—Cuts from 2 to 5 inches.....
No. 3—Cuts from 4 to 10 inches.....

Vanderman's Lead Pipe Cutter



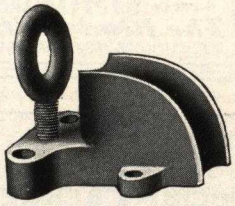
Cuts smoothly and quickly, and makes no chips. Cutters are made of best tool steel and can be sharpened easily on an oil stone.

Steel Frame Portable Work Bench



Made in 20 different sizes. Special sizes made to order.

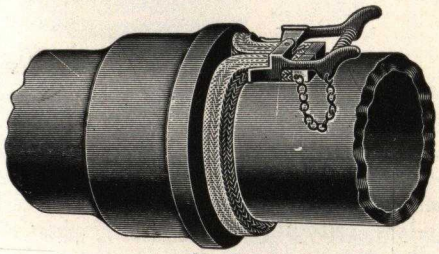
Vanderman's Patented Pipe Bending Form



Made in two sizes and has extension eye bolt permitting a close and accurate bend.

No. 1 takes from ⅛ to 1¼-inch pipe.
Price.....$.....

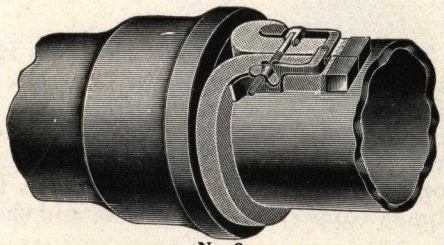
No. 2 takes from 1 to 2-inch pipe.
Price.....$.....



No. 1

Vanderman's Asbestos Lead Joint Runner

Made in 13 sizes.
Special sizes to order.



No. 2

Send for Illustrated, Descriptive Catalogue and List Prices and Trade Discounts

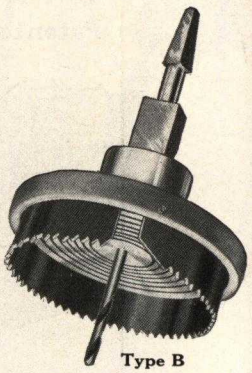
MISENER MANUFACTURING CO., INC. SYRACUSE, N. Y.

326-328 East Washington Street

Representatives:

Boston, Mass., Walter C. Gindele, 170 Purchase St.
New York City, Frederick Seeley, 1747 58th St., Brooklyn, N. Y.
Montreal, Canada, W. George Borland, 442 The Birks Bldg.
Richmond, Va., George T. Hewitt, 1107 West Franklin St.

The MISENER ROTARY HACK SAW cuts a clean and finished round hole in steel, cast iron, sheet metal, marble, slate, bakelite, wood and plaster with very little effort.



Type B

Tools and Blades Patented

No. 1

Cuts actual diameters from 1 to 3½ inches by ¼-inch variations—11 sizes—¾-inch depth of Blades.

Type B.....$12.00
Type P..... 12.00

No. 2

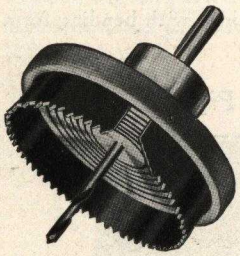
Cuts outside diameters of iron pipe or conduit from ¾ to 4 inches—9 sizes—½-inch depth of Blades.

Type B.....$13.50
Type P..... 13.50

No. 3

Cuts actual diameters from ¾ to 2 inches by ¼-inch variations—6 sizes—½-inch depth of Blades.

Type B.....$7.00 Type P.....$7.00



Type P
"The Tool That Cuts Circles"

Standard Blades

½, ¾, 1, 1¼, 1½, 1¾, 2¼, 2¾ inches deep.

Single Cut Tools in any diameter from ¾ to 10 inches.

Special Tools

We invite inquiries on tools to cut any diameter of holes required.

Attractive Proposition to Distributors

No. 4

Cuts outside diameters of iron pipe or conduit from ½ to 2 inches—6 sizes—½-inch depth of Blades.

Type B.....$7.00 Type P.....$7.00

No. 5

Cuts pipe tap sizes and the openings made are just right for starting a tap without reaming.

No. 5 cuts—1, 1¼, 1½, 2-inch—pipe tap sizes—1-inch depth of Blades—two sets.

Type B.....$8.00 Type P.....$8.00

No. 5X cuts—¾, 1, 1¼, 1½, 2-inch—pipe tap sizes—1-inch depth of Blades—two sets.

Type B.....$9.00 Type P.....$9.00

Single tap size tools available in ½ to 2-inch sizes.

SIMONDS SAW AND STEEL CO. FITCHBURG, MASS.

Branch Offices

Boston, Mass., 1350 Columbia Road.
Chicago, Ill., 127 South Green Street.
Los Angeles, Cal., 400 East Third Street.
Montreal, Que., Can., Simonds Canada Saw Co., Ltd., St. Remi Street and Acorn Avenue.
New Orleans, La., 420 Canal Street.
New York, N. Y., 109 Lafayette Street.
Portland, Ore., 85 First Street.
San Francisco, Cal., 228 First Street.
Seattle, Wash., 1934 First Avenue, South.
Toronto, Ont., Can., Simonds Canada Saw Co., Ltd., 1550 Dundas Street, West.
Vancouver, B. C., Can., Simonds Canada Saw Co., Ltd., 554 Beatty Street.



Plumbers' Special Package of Red End Hack Saw Blades

"The Blade with the Red End"

Contains four dozen Simonds Hard Edge Non-breaking Hack Saw Blades in a selected assortment of just the right blades for Plumbers' use. Two dozen blades have **Medium Teeth** for cutting iron pipe, tool steel, hard metals, and light angle iron. The other two dozen blades have **Fine Teeth** for cutting brass, copper, medium tubing and sheet metal.

The packages are made up in three different lengths of blades (one length only to a box) and at the following list prices:

8 inch—$2.65 per package.
10 inch—$3.35 per package.
12 inch—$4.00 per package.
All subject to Dealers' Discounts.

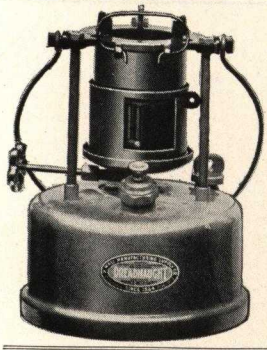
Sold Through Plumbing Supply Jobbers

P. WALL MFG. SUPPLY COMPANY — PITTSBURGH, PA.

General Offices and Factory—3126-3166 Preble Avenue

Representatives

Boston, Mass., W. C. Gindele, 170 Purchase St.
Chicago, Ill., C. R. Higgins, 109 N. Dearborn St.
Cincinnati, Ohio, L. W. Stewart Sales Co., 327 Dixie Terminal.
Kansas City, Mo., C. W. Chiles, 322 N. Van Brunt Blvd.
New York, N. Y., E. H. Brinkman, 50 Church St.
Philadelphia, Pa., M. G. Hayden, 410 Commerce St.
St. Louis, Mo., Hubbell & Sharp, 2817 Laclede Ave.
San Francisco, Cal., W. R. Voorhees & Co., 417 Market St.
Seattle, Wash., C. R. Slaughter, Smith Tower.
Waynesville, N. C., R. N. Barber & Co.

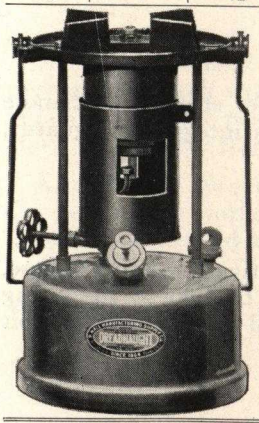


Wall "Dreadnaught" No. 55 Furnace

New furnace using "Dreadnaught" features of construction, manufactured for plumbers' use. Burner especially designed for fast preheating and generating. Lower in height than either No. 51 or No. 53 furnace. Has pressed-steel hood with permanent bail and wood grip. Wide 1-gallon tank capacity.

Packed one in a fiber carton and furnished with cleaning needle, extra filler plug washer and burner block. Burns gasoline only.

Catalog No.	Tank Capacity Gallons	Dimensions, Inches: Height Without Hood	Dimensions, Inches: Maximum Hood Diameter	Dimensions, Inches: Maximum Tank Diameter	Shipping Weight Each Pounds	List Price Each
55	1	12	7½	9	10	$20.00



Wall "Dreadnaught" No. 53 Furnace

Especially designed for electrical purposes and extensively used by the construction and maintenance departments of public utilities companies in underground and overhead work. Hood and top plate larger than on No. 51 furnace to accommodate large solder pots and compound kettles. Melts 40 pounds of solder in 10 minutes.

Packed one in a fiber carton and furnished with cleaning needle, extra filler plug washer and burner block.

Burns either gasoline or kerosene. When ordering state fuel to be used.

Catalog No.	Tank Capacity Gallons	Dimensions, Inches: Height Without Hood	Dimensions, Inches: Hood Diam.	Dimensions, Inches: Hood Height	Dimensions, Inches: Maximum Tank Diameter	Shipping Weight Each Pounds	List Price Each
53	1	14	7⅝	5½	9	16½	$35.00



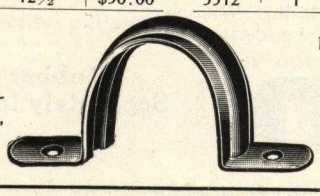
Wall "Dreadnaught" No. 51 Furnace

A general utility furnace—for all purposes, inside and outdoors, and used as standard by many large companies on general maintenance work. Also used by plumbers where a large-capacity furnace is needed. Melts 40 pounds of solder in 10 minutes. Has pressed-steel hood and permanent bail. Packed one in a fiber carton and furnished with cleaning needle, extra filler plug washer and burner block. Burns either gasoline or kerosene. When ordering state fuel to be used.

Catalog No.	Tank Capacity Gallons	Dimensions, Inches: Height Without Hood	Dimensions, Inches: Maximum Hood Diameter	Dimensions, Inches: Maximum Tank Diameter	Shipping Weight Each Pounds	List Price Each
51	1	14	7½	9	12½	$30.00

Galvanized Steel Pipe Hangers

Sizes ¼-inch, BX, ⅜-inch, ½-inch, ¾-inch, 1-inch, 1¼-inch, 1½-inch, 2-inch, 2½-inch, 3-inch, 3½-inch, 4-inch, 4½-inch, 5-inch.



"Dreadnaught" Blow Torches Nos. 31 and 38

Dependable general-utility torches which meet every requirement of usual torch service. Now furnished in wide base for greater stability. Burner of brass-casting type is readily heated. Lighter in weight than No. 41 torch, and very satisfactory for indoor or outdoor work. Burns gasoline only. Equipped with soldering iron rest. Packed one in a carton, 12 cartons to a case.



Catalog No.	Tank Capacity	Shipping Weight, per Dozen, Pounds	List Price: Each	List Price: Dozen
31	1 qt.	55	$5.00	$60.00
38	1 pt.	50	5.00	60.00

Wall "Dreadnaught" Blow Torches

Represent the very latest development in "Dreadnaught" blow torch design. Especially adapted for use in strong winds, and are economical in operation and upkeep. They produce a much broader and hotter flame than No. 31. Made in two styles—one for gasoline and one for kerosene. Tanks tested to 100-pound pressure. Equipped with windshield, removable burner block, non-enlarging burner orifice, and have automatic needle valves with patented non-heating handles. Pump plungers have spring wire clevises to hold them in place.



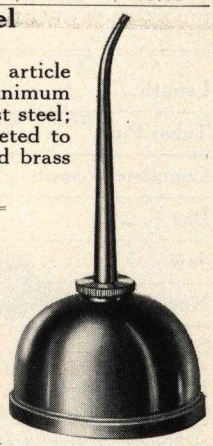
Catalog No.	Description	Tank Capacity Quart	Shipping Weight, per Dozen, Pounds	List Price: Each	List Price: Dozen
41	For Gasoline	1	62	$7.00	$84.00
42	For Kerosene	1	62	8.00	96.00

Wall "Superior" Welded-steel Spring-bottom Oilers

Combine the features most essential to an article of this nature—quality—appearance—minimum cost. They are manufactured from the finest steel; bottoms welded to bodies; brass collars riveted to bodies; spouts welded and riveted into solid brass machined bushings.

Specifications

Catalog No.	Capacity Pints	Body Diam. Inches	*Spout Length Inches	Shipping Weight per Doz. Pounds	List Price Doz.
2204	⅛	3⅜	4	3¾	$5.00
2206	⅛	3⅜	6	4	5.50
2209	⅛	3⅜	9	4½	6.00
3304	½	3¾	4	4¾	6.00
3306	½	3¾	6	5	6.50
3309	½	3¾	9	5½	7.00
5504	1	4⅛	4	6	8.00
5506	1	4⅛	6	6¼	8.50
5509	1	4⅛	9	6¾	9.00
5512	1	4⅛	12	7	9.00



*6-inch spouts and longer are furnished bent, unless otherwise specified.

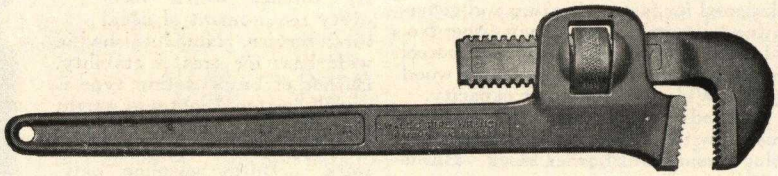
Hot Dipped Galvanized Hangers

Packed in 100-pound bags, 25-pound and 5-pound cartons. All sizes carried in stock. Immediate shipment.

WALWORTH COMPANY NEW YORK, N. Y.

Executive Offices—60 East 42nd Street
Plants at Boston, Mass.; Kewanee, Ill.; Greensburg, Pa.; Attalla, Ala.; East St. Louis, Ill.
Distributors in Principal Cities of the World
WALWORTH INTERNATIONAL CO., NEW YORK, Foreign Representative

The Walco Pipe Wrench



Simple

Only four parts. Pins, rivets, and fussy small parts eliminated. No tools needed to replace any part. The annoyance of carrying numerous repair parts on hand is avoided.

Sturdy

No frame pin to loosen. No thin assembled frame to spread apart or distort. Greater strength in handle through elimination of holes for springs and rivets. The forged steel housing, with its integral nut guards, protects the nut and is resistant to abuse and side strains.

Improved Action

Its action is a new and patented feature which affords three advantages: Quick and positive grip, easy release, and minimum crushing effect. In its normal position the jaw shank is held away from the bar by the spring which presses it firmly against a long bearing in the back of the housing. It is thus held in a neutral position from which angular action both forward and backward is permitted.

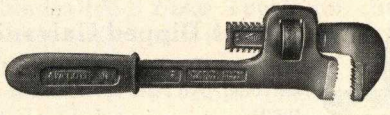
New Design Teeth

The teeth are especially designed and hardened to permit sharpening them on the corner of a fine grained emery wheel. They are not merely case hardened but are hardened deeply permitting several sharpenings. The design and action of the Walco Pipe Wrench is such that it will grip and hold even if the teeth on the bar become badly worn and damaged.

Price List

Length.....Inches	6	8	10	14	18	24	36*	48*
Takes Pipe.....Inches	⅛ to ½	⅛ to ¾	⅛ to 1	¼ to 1½	¼ to 2	¼ to 2½	¼ to 4	1 to 6
Complete Wrench.....Each	$1.90	$2.20	$2.85	$3.85	$5.50	$8.50	$15.00	$25.00
Bar.....Each	1.10	1.35	1.75	2.45	3.60	5.65	11.50	18.75
Jaw.....Each	.65	.70	1.10	1.50	2.15	3.50	5.70	9.00
Nut.....Each	.15	.15	.20	.30	.35	.55	1.10	2.00
Spring.....Each	.25	.30	.35	.40	.50	.60	.70	.80
Rubber Grips Extra.....Each	.....	.....	.30	.40	.....	.....	.....	.....

*Note—Larger sizes of pipe taken by 36-inch and 48-inch Wrenches.



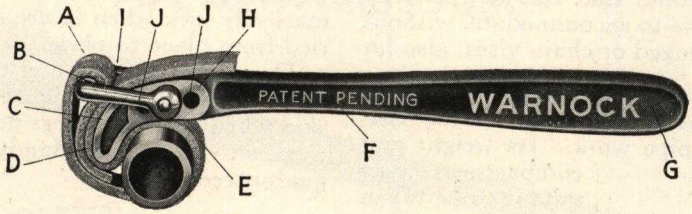
Rubber Grips Furnished Separately in 10-inch and 14-inch Sizes

For Walworth Well Points and Foot Valves, see Page 512

WARNOCK MANUFACTURING CO. WORCESTER, MASS.

54 Commercial Street

The Triple Wear Warnock



Newly Improved—Triple Wear

Sure Grip—Can't Slip—Never Scratches

See the two added holes **J. J.** These give 3 wearing positions for each strap, increasing the life of the strap, which is the only part that wears out. Note all other good features are retained.

A. Flexible Woven Strap—brown stripe—one of the best in the world. Brown Stripe Straps are twice as strong as our old kind.

B. Drop Forged Shackle. **C.** Curving nose won't crush the pipe. **D.** Double strap where wear is greatest.

E. Soft contact only—cannot scratch.

F. Unbreakable handle. **G.** Fine Enamel—always looks new.

H. Fine Polished head. **I.** When free from strain, swinging shackle gives double opening, making the **Warnock** the quick strap wrench.

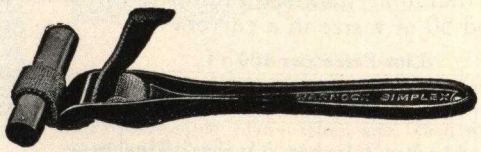
The original wrench for smooth piping.
For fine work on nickel plated or highly polished brass pipe.
In stock at dealers everywhere.

Prices

12-inch or Plumber's Size, for ⅛ to 2-inch pipe . . $2.50
Extra Straps for 12-inch Wrench 50

18-inch or Engineer's Size, for 1-inch to 5-inch pipe $5.00
Extra Straps for 18-inch Wrench 1.00

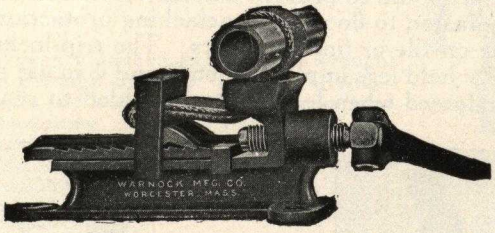
Warnock Simplex Wrench



The Warnock Simplex Wrench consists of a handle—a strap—a wedge. Both ends of the straight unlooped strap can be used. Short broken straps can be used on small pipe. Finished in black enamel with polished head.

12-inch size only $1.50
Extra Straps 50

Warnock Single Strap Vise



The Warnock Strap Vise is constructed on the same principle as the Warnock wrench. It is instantly adjustable for any size of pipe from ⅛ to 2 inches. Has heavy unbreakable strap that will not scratch.

Price $8.00
Straps 1.00

WESTERN WIRE PRODUCTS COMPANY — ST. LOUIS, MO.

1415-1435 South 18th Street

Representatives

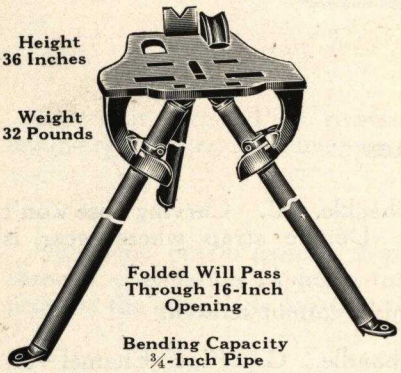
Brooklyn, N. Y., Frederick Seeley, 1747 58th Street

Oakland, Calif, Alfred Howe, 717 Calmar Avenue

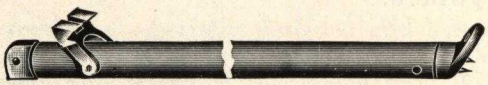
The "Handy Andy" Vise Stand

The "Handy Andy" Vise Stand is a Light, Strong, Rigid, Portable, Folding Stand that can be instantly placed or moved and is made to accommodate, without any drilling, all standard hinged or chain vises; also for bending pipe and conduit.

It is designed to save time and labor in bending, cutting, threading and other pipe work. Its weight and compactness permits it to be taken everywhere. For: Plumbers, Steam-Fitters, Electricians and many others.



The top is a very strong malleable iron casting made in one piece, including the leg braces, pipe rest, bending block and leg attachments. There are slotted openings in the top that will accommodate all makes of hinged and chain pipe vises without drilling. Bolts, Nuts and Washers which are furnished are all that are required to fasten vise. The bending block is arranged to bend up to and including ¾-inch pipe. Openings for holding stock and wrenches are provided.



The legs are made of 1 5/16-inch rail-steel tubing on the ends of which malleable iron fittings and feet are securely riveted. They are permanently attached to the top and fold together when stand is moved. The top fittings are designed to permit the legs to swing only to center when being carried. The malleable iron feet have short spurs to prevent sliding, also holes to permanently fasten to floor or for attaching protection when working on tile or finished floors. The trip-locks automatically hold legs in place when Stand is in use and are easily released when legs are to be folded to center.



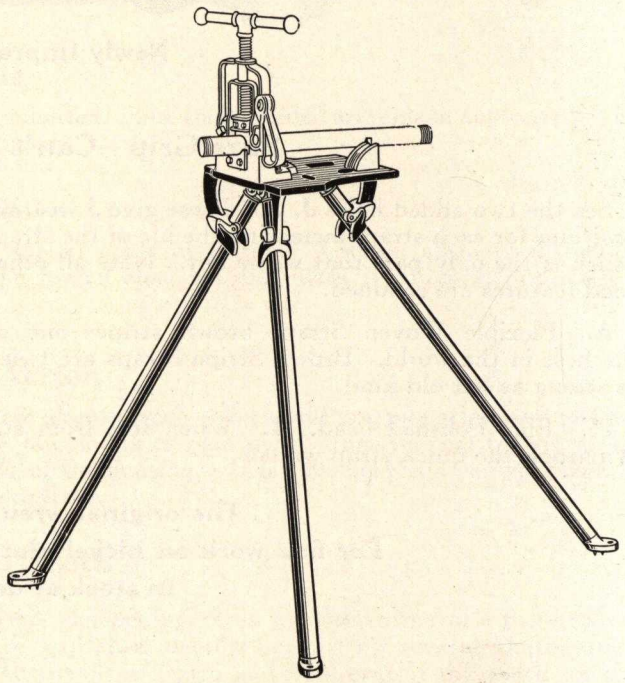
Folded



Open

Made throughout of malleable iron and steel. It has no loose parts and is never taken apart. The legs automatically lock when in use and fold together when carried from place to place.

The spread and pitch of the legs are so designed that the Stand is perfectly rigid with no tendency to move or skid when in use and legs do not interfere with close-up work on vise. The "Handy Andy" Vise Stand is fully guaranteed.



List Prices

"Handy Andy" Vise Stand (without vise) $18.00

"Handy Andy" Vise Stand with hinged vise, capacity ⅛ to 2½ inches $23.00

Bolts, nuts and washers for attaching vises are furnished with Stand, also oil-can bracket attached.

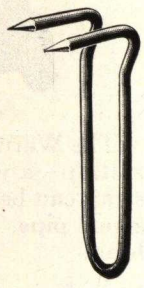
Distributed through the Jobbing Trade.

Wire Pipe Hooks

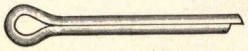
Long diamond points. Humped for easy driving. Packed 50 of a size in a carton.

List Price per 100

Size Pipe Inches	Length of Hook			
	4 Inches	6 Inches	8 Inches	10 Inches
⅜	$1.15	$1.40	.....	.....
½	1.20	1.50	$1.90	.....
¾	1.30	1.70	2.20	$2.80
1	1.50	2.00	2.40	2.80
1¼	1.90	2.50	3.00	3.50
1½	.....	2.70	3.50	4.00
2	.....	2.90	4.00	4.50



Cotter Pins



We manufacture all sizes of both Steel and Brass Cotter Pins.

J. H. WILLIAMS & Co. NEW YORK, N. Y.

Sales and General Offices—75-77 Spring St.

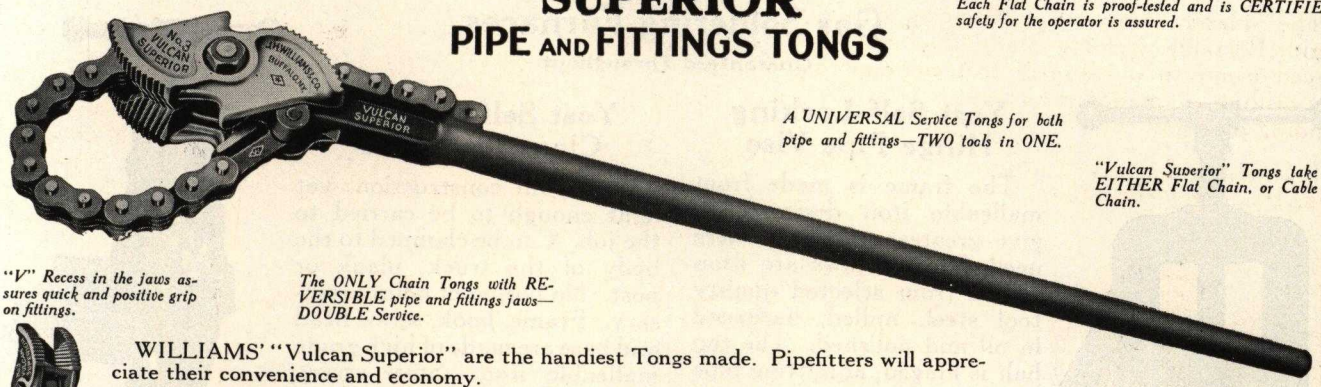
Works and District Warehouse
Buffalo, N. Y.

District Warehouse
117 N. Jefferson St., Chicago

WILLIAMS
SUPERIOR DROP-FORGED TOOLS

VULCAN SUPERIOR
PIPE AND FITTINGS TONGS

Each Flat Chain is proof-tested and is CERTIFIED; safety for the operator is assured.



A UNIVERSAL Service Tongs for both pipe and fittings—TWO tools in ONE.

"Vulcan Superior" Tongs take EITHER Flat Chain, or Cable Chain.

"V" Recess in the jaws assures quick and positive grip on fittings.

The ONLY Chain Tongs with REVERSIBLE pipe and fittings jaws—DOUBLE Service.



WILLIAMS' "Vulcan Superior" are the handiest Tongs made. Pipefitters will appreciate their convenience and economy.

Convenience: Since they serve BOTH pipe and fittings, two tools as commonly used (one for pipe and one for fittings) are unnecessary.

Economy: Their REVERSIBLE jaws give double life. When the teeth first in use wear, simply unscrew the bolt and turn the jaws end-for-end.

The "V" Recess in the jaws, combined with their general design, gives "Vulcan Superior" a greater number of grips or "bites," both on pipe and fittings, than ordinary tongs. One-spot wear on the teeth is prevented and ease in operation provided.

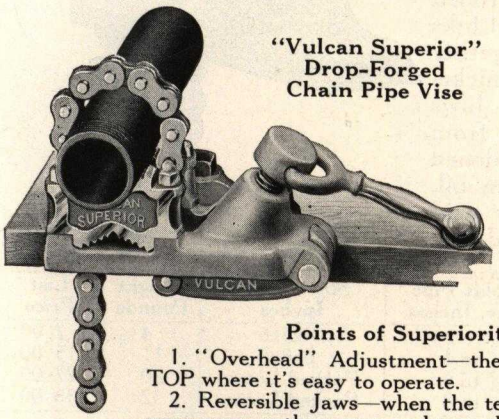
Fully guaranteed. All parts interchangeable.

Number	0	1	2	3	3½	4	5
For Pipe and Fittings, inches	⅛ to ¾	⅛ to 1½	¼ to 2½	¾ to 4	1 to 6	1½ to 8	2 to 12
Extreme Length	13¾	20	27	37	44½	50½	64½
Weight, pounds	2	5½	10	17	26	34	54
Flat Link Chain							
Breaking strain, pounds	3,600	6,700	9,800	12,500	14,300	15,700	21,800
Cable Chain							
Breaking strain, pounds	1,800	6,000	9,000	12,500	14,300	15,700	21,800
Price, Complete	**$5.00**	**$7.00**	**$10.00**	**$14.00**	**$18.00**	**$22.00**	**$36.00**
Extra Chain	1.50	2.00	3.00	5.00	7.00	9.00	15.00
*Extra Jaws, per pair	2.00	3.50	5.50	8.00	9.50	11.00	15.00
Extra Bolt and Nut, per set	.28	.36	.46	.60	.70	.90	1.30

*Extra Jaws supplied in pairs unless otherwise called for. If only a single jaw is wanted, specify Right or Left.

Williams' "Vulcan" Drop-Forged Chain Pipe Vises

"Vulcan Superior" Drop-Forged Chain Pipe Vise



Points of Superiority

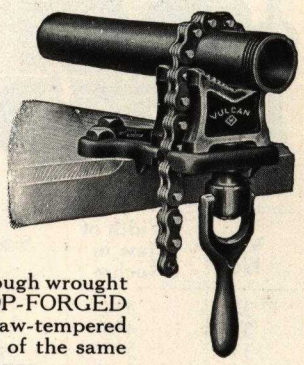
1. "Overhead" Adjustment—the handle is ON TOP where it's easy to operate.
2. Reversible Jaws—when the teeth first in use wear, remove the screws and turn the jaws over.
3. Larger Capacity—each vise takes pipe ½-inch larger than other chain pipe vises of similar size.

Two styles of finish: Chrome-plated and standard with orange panel in jaws.

Wholly made from tough wrought steel. Fully guaranteed. Packed one in a box for shelving.

No.	For Pipe Sizes	Weight Each Pounds	Prices, Vises and Extra Parts					
			Jaws, Pair		Chain Without Chain Arm		VISE, Complete	
			Std. Finish	Chrome Plated	Standard	Plated	Standard Finish	Chrome-Plated
11	⅛ to 2½	7	$3.30	$4.00	$2.00	$2.20	$10.00	$12.00
12	¼ to 4½	15	7.70	9.00	3.60	4.00	19.00	22.00

"Vulcan" Drop-Forged Chain Pipe Vise



THE ORIGINAL CHAIN PIPE VISE

These vises are made entirely of tough wrought steel—no castings are used. DROP-FORGED base, handle and jaws, with teeth saw-tempered for file sharpening. The chains are of the same quality as those of our "Vulcan" Tongs.

Standard finish, with orange panel in jaws.

Unbreakable, light, compact, rapid in action, positive in grip. Fully guaranteed. Packed one in a box for shelving.

No.	For Pipe Sizes	Weight Each Pounds	Price, Vise and Extra Parts					
			Jaws Pair	Chain with Screw	Screw	Handle and Nut	Nut	Vise Complete
1	⅛ to 2	4	$ 3.00	$ 2.50	$0.80	$2.20	$1.40	$ 7.00
2	¼ to 4	10	7.00	4.80	1.40	4.20	2.70	15.00
3	½ to 6	18	12.00	9.00	2.50	7.00	4.00	27.00
4	½ to 8	30	18.00	12.00	2.50	7.00	4.00	36.00

Established 1908

YOST MANUFACTURING CO. MEADVILLE, PA.

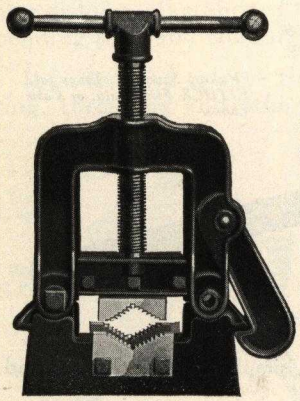
Manufacturers of

YOST VISES

and

Gas Soldering Furnaces

Guaranteed Throughout



Yost Self-Locking Hinge Pipe Vise

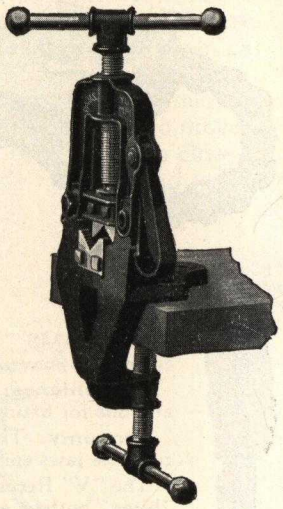
The frame is made from malleable iron designed to give greatest strength where needed. Pipe jaws are drop forged from selected quality tool steel, milled, hardened in oil and polished. The top half is hinged, admitting pipe sidewise.

Also manufacture the Extra - Heavy Self - Locking Pipe Vise Series Nos. 61 to 66.

Vise No.	Holds Pipe Inches	Weight Pounds	List Price
5000	⅛ to 1¼	3	$ 2.50
500	⅛ to 1½	5	3.60
50	⅛ to 2	7½	4.25
51	⅛ to 2½	12	5.00
52	⅛ to 3½	17	7.50
53	⅛ to 4½	26	11.00

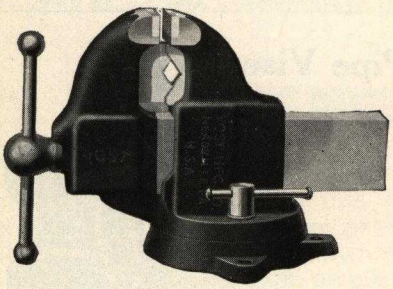
Yost Self-Locking Clamp Kit Vise

Sturdy in construction, yet light enough to be carried to the job. Can be clamped to the body of the truck, plank or post. No boring of holes necessary. Frame, hook, screw head and base are made of high grade malleable iron. Steel screw, handle and handle balls. Drop forged pipe jaws made from high carbon steel, hardened, drawn in oil and polished.



Vise No.	Holds Pipe Inches	Clamp Opens, In.	Weight Pounds	List Price
9000	⅛ to 1¼	2	4½	$3.50
900	⅛ to 1½	2	7½	4.50
90	⅛ to 2	3	10	5.00
91	⅛ to 2½	3	14	6.50

Yost Combination Pipe Vise

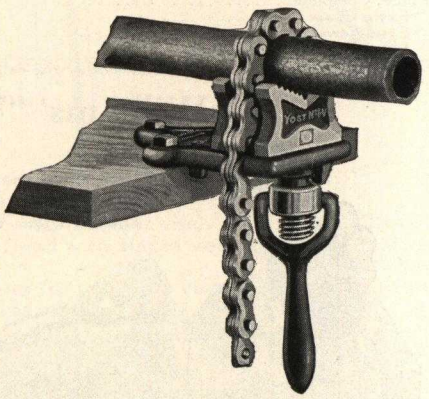


Yost Combination Pipe Vises are exceptionally heavy, and are made to stand hard usage. Removable pipe jaws, forged from selected quality tool steel, quenched and drawn in oil. Reversible front pipe jaw, giving double wear.

Vise No.	Width of Jaw in Inches	Size of Pipe	Weight Pounds	List Price
31	3½	⅛ to 2½	53	$16.00
32	4½	⅛ to 3½	74	22.00
33	5	⅛ to 4½	116	32.00
34	6	¼ to 6	175	45.00

Yost Chain Pipe Vise

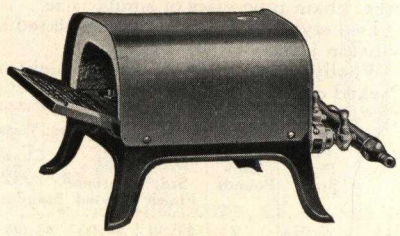
This Vise is guaranteed to stand up under all conditions. The chain is made of cold rolled sheet steel. Links are held together with pins of nickel alloy steel. Jaws drop forged from tool steel, hardened and drawn in oil. Steel screw and case hardened nut.



Vise No.	Holds Pipe Size, Inches	Size Carton Inches	Weight Pounds	List Price
1-V	⅛ to 2½	4x5x6	4½	$ 7.00
2-V	¼ to 4	6x8x8	11	15.00
3-V	¼ to 6	Packed Loose	20	27.00
4-V	¼ to 8	Packed Loose	32	36.00

Yost Gas Soldering Furnace

Burns only 8 feet of gas an hour. Adjustable air mixers permit regulating the mixture of 92 per cent air under usual gas pressure. Always state whether furnace is for use with natural or artificial gas.



	Weight, Pounds	List Price
No. 1—Single Burner, with Cast-Iron Top	7½	$3.00
No. 2—Double Burner, with Cast Iron Top	10	4.00
No. 3—Single Burner, with Fire Brick	8	4.00
No. 4—Double Burner, with Fire Brick	11	5.00

Tables and Rules Section

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Alan O'Bright

Index for Standard Tables and Rules Used in Plumbing and Heating

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STANDARD TABLES AND RULES

used in the Plumbing and Heating Industry

GENERAL DATA — Weight and Measures

Linear Measure

12	inches (in.)	= 1	foot	ft.
3	feet	= 1	yard	yd.
5.5	yards	= 1	rod	rd.
40	rods	= 1	furlong	fur.
8	furlongs	= 1	mile	mi.

Square Measure

144	square inches (sq. in.)	= 1	square foot	sq. ft.
9	square feet	= 1	square yard	sq. yd.
30¼	square yards	= 1	square rod	sq. rd.
160	square rods	= 1	acre	A.
640	acres	= 1	square mile	sq. mi.

Cubic Measure

1,728	cubic inches (cu. in.)	= 1	cubic foot	cu. ft.
27	cubic feet	= 1	cubic yard	cu. yd.
128	cubic feet	= 1	cord	cd.
24¾	cubic feet	= 1	perch	P.

Measures of Angles or Arcs

60	seconds (″)	= 1	minute	′
60	minutes	= 1	degree	°
90	degrees	= 1	rt. angle or quadrant	
360	degrees	= 1	circle	cir.
360	degrees	= 2 π	radians	

Avoirdupois Weight

437.5	grains (gr.)	= 1	ounce	oz.
16	ounces	= 1	pound	lb.
100	pounds	= 1	hundredweight	cwt.
20	cwt., or 2,000 lbs.	= 1	ton	T.

Long Ton Table

16	ounces	= 1	pound	lb.
112	pounds	= 1	hundredweight	cwt.
20	cwt., or 2,240 lbs.	= 1	ton	T.

Troy Weight

24	grains (gr.)	= 1	pennyweight	pwt.
20	pennyweights	= 1	ounce	oz.
12	ounces	= 1	pound	lb.

Dry Measure

2	pints (pt.)	= 1	quart	qt.
8	quarts	= 1	peck	pk.
4	pecks	= 1	bushel	bu.

Liquid Measure

4	gills (gi.)	= 1	pint	pt.
2	pints	= 1	quart	qt.
4	quarts	= 1	gallon	gal.
31½	gallons	= 1	barrel	bbl.
2	barrels, or 63 gallons	= 1	hogshead	hhd.
42	gallons (U.S.—Standard Oil Co.)	= 1	barrel	bbl.

1 hhd. = 2 bbl. = 63 gal. = 252 qt. = 504 pt. = 2,016 gi.

The U. S. gallon contains 231 cu. in. = .134 cu. ft. nearly; or 1 cu. ft. contains 7.480 gal. The following cylinders contain the given measures very closely.

	Diam. (Inches)	Ht. (Inches)		Diam. (Inches)	Ht. (Inches)
Gill	1¾	3	Gallon	7	6
Pint	3½	3	8 gallons	14	12
Quart	3½	6	10 gallons	14	15

With water at its maximum density (weighing 62.425 lbs. per cu. ft.), a gallon of pure water weighs 8.345 lbs.

For approximations, 1 cu. ft. of water is considered equal to 7½ gal., and 1 gal. as weighing 8⅓ lbs.

Miscellaneous Table

12 articles	= 1 dozen	20 quires	= 1 ream
12 dozen	= 1 gross	1 league	= 3 miles
12 gross	= 1 great gross	1 fathom	= 6 feet
2 articles	= 1 pair	1 hand	= 4 inches
20 articles	= 1 score	1 palm	= 3 inches
24 sheets	= 1 quire	1 span	= 9 inches

Metric and English Measures

From "The Ideal Fitter" American Radiator Company

Measures of Length

Metric		English	
1	metre =	39.37	inches
		3.28	feet
.3048	metre =	1	foot
1	centimetre =	.3937	inch
2.54	centimetres =	1	inch
1	millimetre =	.03937	inch (1/25 inch, nearly)
25.4	millimetres =	1	inch
1	kilometre =	1093.61	yards

Measures of Surface

1	square metre =	10.764	square feet
.0929	square metre =	1	square foot
1	square centimetre =	.155	square inch
6.452	square centimetres =	1	square inch
1	square millimetre =	.00155	square inch
645.2	square millimetres =	1	square inch

Measures of Volume

Metric		English	
1	cubic metre =	35.314	cubic feet
.02832	cubic metre =	1	cubic foot
1	cubic decimetre =	61.023	cubic inches
		.0353	cubic foot
28.32	cubic decimetres =	1	cubic foot
16.387	cubic centimetres =	1	cubic inch
1	cubic centimetre =	.061	cubic inch

Measures of Capacity

1	litre = 1 cubic decimetre =	61.023	cubic inches
		.0353	cubic foot
		.2202	gallon (Imperial)
		2.202	pounds of water at 62 degrees Fahrenheit
28.317	litres =	1	cubic foot (6.25 Imperial gallons)
4.543	litres =	1	gallon (Imperial)
3.785	litres =	1	gallon (American)

Metric and English Measures—(Continued)

Measures of Weight

Metric			English
28.35	grammes..... =	1	ounce avoirdupois
1	kilogramme..... =	2.2046	pounds
.4536	kilogramme..... =	1	pound
1	metric ton =	.9842	ton of 2240 pounds, or
1000	kilogrammes =	19.68	cwts. or 2204.6 lbs.
1.016	metric tons =		1 ton of 2240 pounds
1016	kilogrammes =		

Miscellaneous

Metric			English
1	gramme per square millimetre..... =	1.422	Pounds per square inch
1	kilogramme per square millimetre =	1422.32	Pounds per square inch
1	kilogramme per square centimetre =	14.233	Pounds per square inch
1.0335	kilogramme per square centimetre 1 atmosphere.... =	14.7	Pounds per square inch
0.070308	kilogramme per square centimetre =	1	Pounds per square inch

Measures of Pressure and Weight

1 lb. per square inch..... =	144	lbs. per square foot
	2.0355	inches of mercury at 32 degrees Fahr.
	2.0416	inches of mercury at 62 degrees Fahr.
	2.309	ft. of water at 62 degrees Fahr.
	27.71	inches of water at 62 degrees Fahr.
1 Atmosphere (14.7 lbs. per sq. in.)..... =	2116.3	lbs. per square foot
	33.947	ft. of water at 62 degrees Fahr.
	30	inches of mercury at 62 degrees Fahr.
	29.929	inches of mercury at 32 degrees Fahr.
	760	millimetres of mercury at 32 degrees Fahr.
1 Foot of Water at 62 degrees Fahr..... =	.433	lbs. per square inch
	62.355	lbs. per square foot
1 Inch of Mercury at 62 degrees Fahr..... =	.491	lb. or 7.86 oz. per sq. in.
	1.132	ft. of water at 62 degrees Fahr.
	13.58	inches of water at 62 degrees Fahr.

Weight of One Cubic Foot of Pure Water

At 32 degrees Fahr. (freezing point).....62.418 lbs.
At 39.1 degrees Fahr. (maximum density).....62.425 lbs.
At 62 degrees Fahr. (standard temperature).....62.355 lbs.
At 212 degrees Fahr. (boiling point, under 1 atmosphere).....59.76 lbs.
Imperial gallon = 277.274 cubic inches of water at 62 degrees Fahr.....= 10 lbs.
American gallon = 231 cubic inches of water at 62 degrees Fahr.....= 8.3356 lbs.

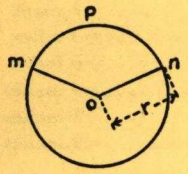
General Data

1 Calorie..... =	3.968	B. t. u.
1 B. t. u..... =	0.252	Calorie
1 lb. per sq. in²..... =	703.08	kilogrammes per m²
1 Kilogramme per m²..... =	.00142	lb. per sq. in.
1 Calorie per m²..... =	.3687	B. t. u. per sq. ft.
1 B. t. u. per sq. ft..... =	2.712	calories per m²
1 Calorie per m² per degree difference Cent..... =	.2048	B. t. u. per sq. ft. per degree difference Fahr.
1 B. t. u. per sq. ft. per degree difference Fahr.... =	4.882	Calories per m² per degree difference Cent.
1 B. t. u. per lb..... =	.556	Calorie per kilog.
1 Calorie per kilog..... =	1.8	B. t. u. per lb.
Water expands in bulk from 40 degrees to 212 degrees. =		One twenty-third.

A cubic inch of water evaporated under ordinary atmospheric pressure is converted into 1 cubic foot of steam (approximately).

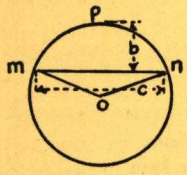
Area of Circular Sections

Reprinted by permission from Carnegie Steel Company Pocket Companion



Circular Sector, m o n p

Area = ½ (length of arc m p n x radius, r)
= area of circle x $\frac{\text{arc, m p n, in degrees}}{360}$
= 0.0087266 x square of radius, r², x angle of arc, m p n, in degrees.

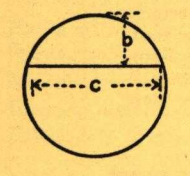


Circular Segment, m p n, less than half circle.

Area = area of sector, m o n p—area of triangle, m o n
= (length of arc, m p n, x radius, r) — (radius, r, — rise, b) x cord, c
$\frac{\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad}{2}$

Circular Segment, m q n, greater than half circle.

Area = area of circle—area of segment, m n p



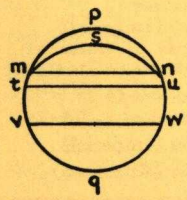
Circular Segment.

Given: rise, b, and chord, c.

Area = product of rise and chord, b x c, multiplied by the coefficient given opposite the quotient of $\frac{b}{c}$:

Intermediate coefficients for values of $\frac{b}{c}$ not given in tables are obtained by interpolation.

Example—Given: rise = 1.49 and chord = 3.52,
$\frac{b}{c} = \frac{1.49}{3.52} = 0.4233$. Coefficient = 0.7542.
Area = b x c x coeff. = 1.49 x 3.52 x 0.7542 = 3.9556.

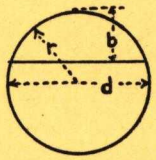


Circular Zone, t u w v

Area = area of circle — (area of segment, t p u + area of segment, v q w).

Circular Lune, m p n s

Area = segment, m p n — segment, m s n.



Circular Segment.

Given: rise, b, and diameter, d = 2r.

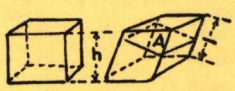
Area = square of diameter, d², multiplied by the coefficient given opposite the quotient of $\frac{b}{d}$

Intermediate coefficients for values of $\frac{b}{d}$ not given in tables are obtained by interpolation.

Example—given: rise = 2 7/16 and diameter = 5 3/32.
$\frac{b}{d}$ = 2 7/16 ÷ 5 3/32 = 0.478528.
Coefficient by interpolation = 0.371233.
Area = d² x coeff. = 25.94629 x 0.371233 = 9.6321.

Surface and Volume of Solids

S = Lateral or Convex Surface. V = Volume



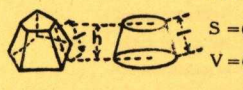
Parallelopiped

S = perimeter, P, perp. to sides x lat. length, l: Pl
V = area of base, B x perpendicular height, h: Bh
V = area of section, A, perp. to sides x lat. length, l: Al



Cylinder, Right or Oblique, Circular or Elliptic, etc.

S = perimeter of base, P x perp. height, h: Ph
S = perimeter, P_1, perp. to sides x lat. length, l: P_1l
V = area of base, B x perpendicular height, h: Bh
V = area of section, A, perp. to sides x lat. length, l: Al



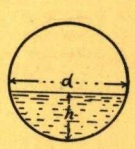
Frustum of Pyramid or Cone, Right and Regular Parallel Ends

S = (sum of perimeter of base, P, and top, p) x ½ slant height, l: ½l (P + p)
V = (sum of areas of base, B, and top, b + square root of their products) x ⅓ perp. height, h:
⅓ h (B + b + $\sqrt{B\,b}$)

Contents of Pipes and Cylindrical Tanks—Axis Horizontal—Flat Ends Contents per Foot of Length for Any Depth of Liquid

(Reprinted with permission from the Piping Handbook, by Walker and Crocker. Published by McGraw-Hill Book Company.)

h = Depth of Liquid Inches	d = Diameter of Tank, Inches									
	12		18		24		30		36	
	Gal.	Cu. Ft.	Gal.	Cu. Ft.	Gal.	Cu. Ft.	Gal.	Cu. Ft.	Gal.	Cu. Ft.
2	0.64	0.0860	0.80	0.1072	0.93	0.1244	1.05	0.1400	1.15	0.154
4	1.73	0.2317	2.18	0.2920	2.57	0.3440	2.90	0.3878	3.21	0.429
6	2.94	0.3927	3.85	0.5149	4.59	0.6140	5.23	0.6988	5.80	0.775
8	4.14	0.5537	5.67	0.7578	6.85	0.9152	7.85	1.049	8.75	1.17
10	5.23	0.6994	7.55	1.009	9.26	1.238	10.72	1.432	12.0	1.60
12	5.87	0.7854	9.38	1.252	11.75	1.571	13.72	1.833	15.4	2.03
14	.....	.....	11.04	1.476	14.24	1.903	16.82	2.248	19.0	2.54
16	.....	.....	12.43	1.659	16.65	2.226	19.90	2.660	22.6	3.02
18	.....	.....	13.22	1.767	18.91	2.527	23.00	3.075	26.4	3.53
20	.....	.....	.....	.....	20.93	2.797	26.00	3.476	29.6	3.95
22	.....	.....	.....	.....	22.57	3.017	28.85	3.859	33.4	4.46
24	.....	.....	.....	.....	23.50	3.1416	31.49	4.209	37.4	5.00
26	.....	.....	.....	.....	.....	.....	33.82	4.521	40.4	5.40
28	.....	.....	.....	.....	.....	.....	35.67	4.768	43.7	5.84
30	.....	.....	.....	.....	.....	.....	36.72	4.908	46.6	6.23
32	.....	.....	.....	.....	.....	.....	.....	.....	49.1	6.55
34	.....	.....	.....	.....	.....	.....	.....	.....	51.2	6.85
36	.....	.....	.....	.....	.....	.....	.....	.....	52.9	7.07
38	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
42	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
44	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
46	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
48	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52										
54										
56										
58										
60										
64										
68										
72										
76										
80										
84										



Formulas for determination of approximate capacity of horizontal cylindrical tanks for any depth. Given:—diameter of tank d and height of segment h.

To find area of segment

when h=0 to ¼d; area=$h\sqrt{1.766\,dh-h^2}$

when h=¼d to ½d; area=$h\sqrt{0.017d^2+1.7dh-h^2}$

1 cu. ft. = 7.4805 U. S. gal.

Contents in U. S. Gallons of Pipes or Cylindrical Tanks of Various Diameters and 1 Ft. in Height

Diameter Inches	Volume in Gallons	Diameter Inches	Volume in Gallons
⅜	0.005	4½	0.826
½	0.010	5	1.02
¾	0.023	5½	1.23
1	0.047	6	1.47
1¼	0.064	7	2.00
1½	0.092	8	2.61
2	0.163	9	3.30
2½	0.255	10	4.08
3	0.367	11	4.93
3½	0.500	12	5.87
4	0.652		

Decimal Equivalents of Fractions

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1–64	.015625	17–64	.265625	33–64	.515625	49–64	.765625
1–32	.03125	9–32	.28125	17–32	.53125	25–32	.78125
3–64	.046875	19–64	.296875	35–64	.546875	51–64	.796875
1–16	.0625	5–16	.3125	9–16	.5625	13–16	.8125
5–64	.078125	21–64	.328125	37–64	.578125	53–64	.828125
3–32	.09375	11–32	.34375	19–32	.59375	27–32	.84375
7–64	.109375	23–64	.359375	39–64	.609375	55–64	.859375
1–8	.125	3–8	.375	5–8	.625	7–8	.875
9–64	.140625	25–64	.390625	41–64	.640625	57–64	.890625
5–32	.15625	13–32	.40625	21–32	.65625	29–32	.90625
11–64	.171875	27–64	.421875	43–64	.671875	59–64	.921875
3–16	.1875	7–16	.4375	11–16	.6875	15–16	.9375
13–64	.203125	29–64	.453125	45–64	.703125	61–64	.953125
7–32	.21875	15–32	.46875	23–32	.71875	31–32	.96875
15–64	.234375	31–64	.484375	47–64	.734375	63–64	.984375
1–4	.25	1–2	.50	3–4	.75	1	1

The above table on decimal equivalents is very important and serve as a short cut when figuring closely and time is limited.

Contents in Cubic Feet and U. S. Gallons, of Pipes and Cylindrical Tanks of Various Diameters and 1 Ft. in Length, when Completely Filled

(Reprinted with permission from the Piping Handbook, by Walker and Crocker. Published by McGraw-Hill Book Company.)

1 gal. = 231 cu. in. 1 cu. ft. = 7.4805 gal.

Diam. in Inches	For 1 Ft. in Length: Cubic feet, also Area in Square Feet	For 1 Ft. in Length: U. S. Gallon, 231 Cu. In.	Length in Inches of Cylinder of 1 cu. ft. Capacity	Diam. in Inches	For 1 Ft. in Length: Cubic feet, also Area in Square Feet	For 1 Ft. in Length: U. S. Gallon, 231 Cu. In.	Length in Inches of Cylinder of 1 cu. ft. Capacity
12½	0.8522	6.375	14.080	21¼	2.463	18.42	4.872
12⅝	0.8693	6.503	13.800	21½	2.521	18.86	4.760
12¾	0.8866	6.632	13.530	21¾	2.580	19.30	4.651
12⅞	0.9041	6.763	13.270	22	2.640	19.75	4.545
13	0.9218	6.895	13.020	22¼	2.700	20.20	4.445
13⅛	0.9395	7.028	12.780	22½	2.761	20.66	4.347
13¼	0.9575	7.163	12.530	22¾	2.823	21.12	4.251
13⅜	0.9757	7.299	12.300	23	2.885	21.58	4.160
13½	0.994	7.436	12.070	23¼	2.948	22.05	4.070
13⅝	1.013	7.578	11.850	23½	3.012	22.53	3.990
13¾	1.031	7.712	11.640	23¾	3.076	23.01	3.901
13⅞	1.051	7.855	11.420	24	3.142	23.50	3.819
14	1.069	7.997	11.230	25	3.409	25.50	3.520
14⅛	1.088	8.139	11.030	26	3.678	27.58	3.263
14¼	1.107	8.281	10.840	27	3.976	29.74	3.018
14⅜	1.127	8.431	10.650	28	4.276	31.99	2.806
14½	1.147	8.578	10.460	29	4.587	34.31	2.616
14⅝	1.167	8.730	10.280	30	4.909	36.72	2.444
14¾	1.187	8.879	10.110	31	5.241	39.21	2.290
14⅞	1.207	9.029	9.940	32	5.585	41.78	2.149
15	1.227	9.180	9.780	33	5.940	44.43	2.020
15⅛	1.248	9.336	9.620	34	6.305	47.16	1.903
15¼	1.268	9.485	9.460	35	6.681	49.98	1.796
15⅜	1.289	9.642	9.310	36	7.069	52.88	1.698
15½	1.310	9.801	9.160	37	7.467	55.86	1.607
15⅝	1.332	9.964	9.010	38	7.876	58.92	1.527
15¾	1.353	10.121	8.870	39	8.296	62.06	1.446
15⅞	1.374	10.278	8.730	40	8.727	65.28	1.375
16	1.396	10.440	8.600	41	9.168	68.58	1.309
16¼	1.440	10.772	8.330	42	9.621	71.91	1.247
16½	1.485	11.11	8.081	43	10.085	75.44	1.190
16¾	1.530	11.45	7.843	44	10.559	78.99	1.136
17	1.576	11.79	7.511	45	11.045	82.62	1.087
17¼	1.623	12.14	7.394	46	11.541	86.33	1.040
17½	1.670	12.49	7.186	47	12.048	90.13	0.996
17¾	1.718	12.85	6.985	48	12.566	94.00	0.955
18	1.768	13.22	6.787	49	13.095	97.96	0.916
18¼	1.817	13.59	6.604	50	13.635	102.00	0.880
18½	1.867	13.96	6.427	51	14.186	106.12	0.846
18¾	1.917	14.34	6.259	52	14.748	110.32	0.814
19	1.969	14.73	6.094	53	15.320	114.60	0.783
19¼	2.021	15.12	5.938	54	15.904	118.97	0.755
19½	2.074	15.51	5.786	55	16.499	122.82	0.727
19¾	2.128	15.92	5.639	56	17.104	127.95	0.702
20	2.182	16.32	5.500	57	17.720	132.55	0.677
20¼	2.237	16.73	5.365	58	18.347	137.24	0.654
20½	2.292	17.15	5.236	59	18.985	142.02	0.632
20¾	2.348	17.56	5.110	60	19.637	146.89	0.611
21	2.405	17.99	4.989				

To find the capacity of pipes greater than the largest given in the table, look in the table for a pipe one-half the given size and multiply its capacity by 4, or one of one-third its size, and multiply its capacity by 9, etc.

Decimals of a Foot Equivalent to Inches and Fractions of an Inch

(Reprinted by permission from Kent's Mechanical Engineers' Handbook, Tenth Edition, published by John Wiley and Sons, Inc.)

Inch	0	1	2	3	4	5	6	7	8	9	10	11
0	Foot	0.0833	0.1667	0.2500	0.3333	0.4167	0.5000	0.5833	0.6667	0.7500	0.8333	0.9167
1/32	.0026	.0859	.1693	.2526	.3359	.4193	.5026	.5859	.6693	.7526	.8359	.9193
1/16	.0052	.0885	.1719	.2552	.3385	.4219	.5052	.5885	.6719	.7552	.8385	.9219
3/32	.0078	.0911	.1745	.2578	.3411	.4245	.5078	.5911	.6745	.7578	.8411	.9245
1/8	.0104	.0938	.1771	.2604	.3438	.4271	.5104	.5938	.6771	.7604	.8438	.9271
5/32	.0130	.0964	.1797	.2630	.3464	.4297	.5130	.5964	.6797	.7630	.8464	.9297
3/16	.0156	.0990	.1823	.2656	.3490	.4323	.5156	.5990	.6823	.7656	.8490	.9323
7/32	.0182	.1016	.1849	.2682	.3516	.4349	.5182	.6016	.6849	.7682	.8516	.9349
1/4	.0208	.1042	.1875	.2708	.3542	.4375	.5208	.6042	.6875	.7708	.8542	.9375
9/32	.0234	.1068	.1901	.2734	.3568	.4401	.5234	.6068	.6901	.7734	.8568	.9401
5/16	.0260	.1094	.1927	.2760	.3594	.4427	.5260	.6094	.6927	.7760	.8594	.9427
11/32	.0286	.1120	.1953	.2786	.3620	.4453	.5286	.6120	.6953	.7786	.8620	.9453
3/8	.0313	.1146	.1979	.2813	.3646	.4479	.5313	.6146	.6979	.7813	.8646	.9479
13/32	.0339	.1172	.2005	.2839	.3672	.4505	.5339	.6172	.7005	.7839	.8672	.9505
7/16	.0365	.1198	.2031	.2865	.3698	.4531	.5365	.6198	.7031	.7865	.8698	.9531
15/32	.0391	.1224	.2057	.2891	.3724	.4557	.5391	.6224	.7057	.7891	.8724	.9557
1/2	.0417	.1250	.2083	.2917	.3750	.4583	.5417	.6250	.7083	.7917	.8750	.9583
17/32	.0443	.1276	.2109	.2943	.3776	.4609	.5443	.6276	.7109	.7943	.8776	.9609
9/16	.0469	.1302	.2135	.2969	.3802	.4635	.5469	.6302	.7135	.7969	.8802	.9635
19/32	.0495	.1328	.2161	.2995	.3828	.4661	.5495	.6328	.7161	.7995	.8828	.9661
5/8	.0521	.1354	.2188	.3021	.3854	.4688	.5521	.6354	.7188	.8021	.8854	.9688
21/32	.0547	.1380	.2214	.3047	.3880	.4714	.5547	.6380	.7214	.8047	.8880	.9714
11/16	.0573	.1406	.2240	.3073	.3906	.4740	.5573	.6406	.7240	.8073	.8906	.9740
23/32	.0599	.1432	.2266	.3099	.3932	.4766	.5599	.6432	.7266	.8099	.8932	.9766
3/4	.0625	.1458	.2292	.3125	.3958	.4792	.5625	.6458	.7292	.8125	.8958	.9792
25/32	.0651	.1484	.2318	.3151	.3984	.4818	.5651	.6484	.7318	.8151	.8984	.9818
13/16	.0677	.1510	.2344	.3177	.4010	.4844	.5677	.6510	.7344	.8177	.9010	.9844
27/32	.0703	.1536	.2370	.3203	.4036	.4870	.5703	.6536	.7370	.8203	.9036	.9870
7/8	.0729	.1563	.2396	.3229	.4063	.4896	.5729	.6563	.7396	.8229	.9063	.9896
29/32	.0755	.1589	.2422	.3255	.4089	.4922	.5755	.6589	.7422	.8255	.9089	.9922
15/16	.0781	.1615	.2448	.3281	.4115	.4948	.5781	.6615	.7448	.8281	.9115	.9948
31/32	.0807	.1641	.2474	.3307	.4141	.4974	.5807	.6641	.7474	.8307	.9141	.9974
	0	1	2	3	4	5	6	7	8	9	10	11

The above table on decimal equivalants is very important and serve as a short cut when figuring closely and time is limited.

The Quantity of Water Held in One Lineal Foot of Pipe in Gallons, Quarts, Pints and Gills

(E. R. Pierce)

Showing the quantity of water held in one lineal foot of pipe in gallons, quarts, pints and gills. Also the weight in pounds and ounces. The length in feet of each size of pipe that will be required to hold 1 cubic foot of water. Also the cubic foot held in one lineal foot of each size of pipe at 40 degrees F. and at sea level.

Size of Pipe, Diameter in Inches	Gallons in 1-Ft. Length	Weight in 1-Ft. Length Lb. Oz.	Length in Lin. Ft. Required to Hold 1 Cu. Ft. of Water	Quantity Held Gal. Qt. Pt. Gill	Cu. Ft. in 1 Lin. Ft. Length	Size of Pipe, Diameter in Inches	Gallons in 1-Ft. Length	Weight in 1-Ft. Length Lb. Oz.	Length in Lin. Ft. Required to Hold 1 Cu. Ft. of Water	Quantity Held Gal. Qt. Pt. Gill	Cu. Ft. in 1 Lin. Ft. Length
1	0.045	0 6	167	0 0 0 1½	0.006	5	1.062	8 10	7	1 0 0 2	0.136
1¼	0.077	0 10	96¼	0 0 0 2½	0.011	6	1.489	12 8	5	1 1 1 3 5/7	0.199
1½	0.105	0 14	70 2/3	0 0 0 3½	0.014	7	1.998	16 12	3.75	2 0 0 0	0.267
2	0.174	1 7	43	0 0 1 1½	0.023	8	2.596	21 11	2.88	2 2 0 1 5/7	0.347
2½	0.249	2 1	30	0 1 0 0	0.034	9	3.259	27 3	2.29	3 1 0 0 5/7	0.436
3	0.384	3 3	19.5	0 1 1 0¼	0.051	10	4.095	34 2	1.83	4 0 0 3	0.547
3½	0.514	4 5	14.5	0 2 0 0½	0.068	11	4.937	41 2	1.52	4 3 1 2	0.659
4	0.661	5 8	11.33	0 2 1 1⅛	0.088	12	5.875	49 0	1.27	5 3 1 0	0.785
4½	0.829	6 15	9	0 3 0 2½	0.111	.....	.....	.....	.....	.....	.....

Gallons and Cubic Feet

(National Tube Co., Pittsburgh, Pa.)

United States Gallons in a given number of cubic feet. (1 cu. ft.=7.480519 U. S. gallons; 1 gallon=231 cubic inches 0.13368056 cubic foot.)

CubicFeet	Gallons	CubicFeet	Gallons	CubicFeet	Gallons	CubicFeet	Gallons	CubicFeet	Gallons	CubicFeet	Gallons	CubicFeet	Gallons	CubicFt.	Gallons
0.1	0.75	1	7.48	10	74.81	100	748.1	1,000	7,480.5	10,000	74,805.2	100,000	748,051.9		
0.2	1.50	2	14.96	20	149.6	200	1,496.1	2,000	14,961.0	20,000	149,610.4	200,000	1,496,103.8		
0.3	2.24	3	22.44	30	224.4	300	2,244.2	3,000	22,441.6	30,000	224,415.6	300,000	2,244,155.7		
0.4	2.99	4	29.92	40	299.2	400	2,992.2	4,000	29,922.1	40,000	299,220.8	400,000	2,992,207.6		
0.5	3.74	5	37.40	50	374.0	500	3,740.3	5,000	37,402.6	50,000	374,025.9	500,000	3,740,259.5		
0.6	4.49	6	44.88	60	448.8	600	4,488.3	6,000	44,883.1	60,000	448,831.1	600,000	4,488,311.4		
0.7	5.24	7	52.36	70	523.6	700	5,236.4	7,000	52,363.6	70,000	523,636.3	700,000	5,236,363.3		
0.8	5.98	8	59.84	80	598.4	800	5,984.4	8,000	59,844.2	80,000	598,441.5	800,000	5,984,415.2		
0.9	6.73	9	67.32	90	673.2	900	6,732.5	9,000	67,324.7	90,000	673,246.7	900,000	6,732,467.1		
												1,000,000	7,480,519.0		

Cubic Feet in a Given Number of Gallons

Gallons	Cubic Feet	Gallons	Cubic Feet	Gallons	Cubic Feet	Gallons	Cubic Feet	Gallons	Cubic Feet	Gallons	Cubic Feet	Gallons	Cubic Feet
1	.134	5	.668	9	1.203	3,000	401.042	7,000	935.764	1,000,000	133,680.6	6,000,000	802,083.4
2	.267	6	.802	10	1.337	4,000	534.722	8,000	1,069.444	2,000,000	267,361.1	7,000,000	935,763.9
3	.401	7	.936	1,000	133.681	5,000	668.403	9,000	1,203.125	3,000,000	401,041.7	8,000,000	1,069,444.5
4	.535	8	1.069	2,000	267.361	6,000	802.083	10,000	1,336.806	4,000,000	534,722.2	9,000,000	1,203,125.0
										5,000,000	668,402.8	10,000,000	1,336,805.6

Table of Equivalents

(Goulds Pumps, Inc., Seneca Falls, N. Y.)

Gallons per Minute	Miner's Inches of 9 G. P. M.	Cubic Feet per Second	Cubic Feet per Minute	Gallons per Hour	Gallons 24 Hours	Barrels per Minute 42 Gal. Barrel	Barrels per Hour 42 Gal. Barrel	Barrels 24 Hours 42 Gal. Barrel
10	1.11	.....	1.3368	600	14,400	.24	14.28	342.8
12	1.33	.....	1.6042	720	17,280	.29	17.14	411.4
15	1.66	.....	2.0052	900	21,600	.36	21.43	514.3
18	2.	.....	2.4063	1,080	25,920	.43	25.71	617.1
20	2.22	.....	2.6733	1,200	28,800	.48	28.57	685.7
25	2.78	.....	3.342	1,500	36,000	.59	35.71	857.
27	3.	.....	3.609	1,620	38,880	.64	38.57	925.
30	3.33	.....	4.001	1,800	43,200	.71	42.85	1.028.
35	3.88	.....	4.678	2,100	50,400	.83	50.	1,200.
36	4.	.....	4.812	2,160	51,840	.86	51.43	1,234.
40	4.44	.....	5.348	2,400	57,600	.95	57.14	1,371.
45	5.	.1	6.015	2,700	64,800	1.07	64.28	1,543.
50	5.55	.....	6.684	3,000	72,000	1.19	71.43	1,714.
60	6.66	.....	8.021	3,600	86,400	1.43	85.71	2,057.
70	7.77	.....	9.357	4,200	100,800	1.66	100.	2,400.
75	8.33	.....	10.026	4,500	108,000	1.78	107.14	2,570.
80	8.88	.....	10.694	4,800	115,200	1.90	114.28	2,742.
90	10.	.2	12.031	5,400	129,600	2.14	128.5	3,085.
100	11.1	.....	13.368	6,000	144,000	2.38	142.8	3,428.
125	13.8	.....	16.710	7,500	180,000	2.98	178.6	4,286.
135	15.	.3	18.046	8,100	194,400	3.21	192.8	4,628.
150	16.6	.....	20.052	9,000	216,000	3.57	214.3	5,143.
175	19.4	.....	23.394	10,500	252,000	4.16	250.	6,000.
180	20.	.4	24.062	10,800	259,200	4.28	257.	6,171.
200	22.2	.....	26.736	12,000	288,000	4.76	285.7	6,857.
225	25.	.5	30.079	13,500	324,000	5.35	321.4	7,714.
250	27.8	.....	33.421	15,000	360,000	5.95	357.1	8,570.
270	30.	.6	36.093	16,200	388,800	6.43	385.7	9,257.
300	33.3	.....	40.104	18,000	432,000	7.14	428.5	10,284.
315	35.	.....	42.109	18,900	453,600	7.5	450.	10,800.
360	40.	.8	48.125	21,600	518,400	8.57	514.3	12,342.
400	44.4	.....	53.472	24,000	576,000	9.52	571.8	13,723.
450	50.	.1	60.158	27,000	648,000	10.7	642.8	15,428.
500	55.5	.....	66.842	30,000	720,000	11.9	714.3	17,143.
540	60.	1.2	72.186	32,400	777,600	12.8	771.3	18,512.
600	66.6	.....	80.208	36,000	864,000	14.3	857.1	20,570.
630	70.	1.4	84.218	37,800	907,200	15.	900.	21,600.
675	75.	1.5	90.234	40,500	972,000	16.	964.	23,143.
720	80.	1.6	96.25	43,200	1,036,800	17.1	1,028.	24,685.
800	88.8	.....	106.94	48,000	1,152,000	19.05	1,142.	27,387.
900	100.	2.	120.31	54,000	1,296,000	21.43	1,285.	30,857.
1,000	111.1	.....	133.68	60,000	1,440,000	23.8	1,428.	34,284.
1,125	125.	2.5	150.39	67,500	1,620,000	26.78	1,607.	38,571.
1,200	133.3	.....	160.42	72,000	1,728,000	28.57	1,714.	41,143.
1,350	150.	3.	180.46	81,000	1,944,000	32.14	1,928.	46,272.
1,500	166.	.....	200.52	90,000	2,160,000	35.71	2,142.	51,427.
1,575	175.	3.5	210.54	94,500	2,268,000	37.5	2,250.	54,000.
1,800	200.	4.	240.62	108,000	2,592,000	42.85	2,571.	61,704.
2,000	222.	.....	267.36	120,000	2,880,000	47.64	2,857.	68,568.
2,025	225.	4.5	270.70	121,500	2,916,000	48.21	2,892.	69,425.
2,250	250.	.....	300.78	135,000	3,240,000	53.57	3,214.	77,143.
2,500	278.	.....	334.21	150,000	3,600,000	59.52	3,571.	85,704.
2,700	300.	6.	360.93	162,000	3,880,000	64.3	3,857.	92,572.
3,000	333.	.....	401.04	180,000	4,320,000	71.43	4,285.	102,840.

Cubical Contents of Rooms

United States Radiator Corp., Detroit, Mich.

Ceiling 8½ Feet High

Examples: Cubical contents of room 10X14X8½ = 1190 cu. ft.

Cubical contents of large rooms such as 22½X24X8½ = cubical contents of two rooms 10½X24X8½ and 12X24X8½ = 2142+2448 = 4590 cu. ft.

Width / Length — 8½ Ft. Ceiling

Width	4	4½	5	5½	6	6½	7	7½	8	8½	9	9½	10	10½	11	11½	12	12½	13	13½	14	14½	15	16	17	18	19	20	21	22	23	24	25
4	136	153	170	187	204	221	238	255	272	289	306	323	340	357	374	391	408	425	442	459	476	493	510	544	578	612	646	680	714	748	782	816	850
4½	153	172	191	210	230	249	268	287	306	325	345	363	382	402	421	440	459	478	497	516	536	555	574	612	650	689	727	765	803	842	880	918	956
5	170	191	212	234	255	276	298	319	340	361	383	404	425	446	468	489	510	531	553	574	595	616	638	680	722	765	807	850	893	935	978	1020	1063
5½	187	210	234	257	281	304	327	351	374	397	421	444	468	491	514	538	561	584	608	631	655	678	701	748	795	842	888	935	982	1029	1075	1122	1169
6	204	230	255	281	306	332	357	383	408	434	459	485	510	536	561	587	613	638	663	689	714	740	765	816	867	918	969	1020	1071	1122	1173	1224	1275
6½	221	249	276	304	332	359	387	414	442	470	497	525	553	580	608	635	662	691	718	746	774	801	829	884	939	995	1050	1105	1160	1216	1271	1326	1381
7	238	268	298	327	357	387	417	446	476	506	536	565	595	625	655	684	714	744	774	803	833	863	893	952	1012	1071	1131	1190	1250	1309	1369	1428	1488
7½	255	287	319	351	383	414	446	478	510	542	574	606	638	669	701	733	765	797	829	861	893	924	956	1020	1084	1148	1211	1275	1339	1403	1466	1530	1594
8	272	306	340	374	408	442	476	510	544	578	612	646	680	714	748	782	816	850	884	918	952	986	1020	1088	1156	1224	1292	1360	1428	1496	1564	1632	1700
8½	289	325	361	397	434	470	506	542	578	614	650	686	723	759	795	831	867	903	939	975	1012	1048	1084	1156	1228	1301	1373	1445	1517	1590	1662	1734	1806
9	306	345	383	421	459	497	536	574	612	650	689	727	765	803	842	880	918	956	995	1033	1071	1109	1148	1224	1301	1377	1454	1530	1607	1683	1760	1836	1913
9½	323	363	404	444	485	525	565	606	646	686	727	767	808	848	888	929	969	1009	1050	1090	1131	1171	1211	1292	1373	1454	1534	1615	1696	1777	1857	1938	2019
10	340	382	425	468	510	553	595	638	680	723	765	808	850	893	935	978	1020	1063	1105	1148	1190	1233	1275	1360	1445	1530	1615	1700	1785	1870	1955	2040	2125
10½	357	402	446	491	536	580	625	669	714	759	803	848	893	937	982	1026	1071	1116	1160	1205	1250	1294	1339	1438	1517	1607	1696	1785	1874	1964	2053	2142	2231
11	374	421	468	514	561	608	655	701	748	795	842	888	935	982	1029	1075	1122	1169	1216	1262	1309	1356	1403	1496	1590	1683	1777	1870	1964	2057	2151	2244	2338
11½	391	440	489	538	587	635	684	733	782	831	880	929	978	1026	1075	1124	1173	1222	1271	1320	1369	1418	1466	1564	1662	1760	1857	1955	2053	2151	2248	2346	2444
12	408	459	510	561	612	663	714	765	816	867	918	969	1020	1071	1122	1173	1224	1275	1326	1377	1428	1479	1530	1632	1734	1836	1938	2040	2142	2244	2346	2448	2550
13	442	497	553	608	663	718	774	829	884	939	995	1050	1105	1160	1216	1271	1326	1381	1437	1492	1547	1602	1658	1768	1879	1989	2100	2210	2321	2431	2542	2652	2763
14	476	536	595	655	714	774	833	893	952	1012	1071	1131	1190	1250	1309	1369	1428	1488	1547	1607	1666	1726	1785	1904	2023	2142	2261	2380	2499	2618	2737	2856	2975
15	510	574	638	701	765	829	893	956	1020	1084	1148	1211	1275	1339	1403	1466	1530	1594	1658	1721	1785	1849	1913	2040	2168	2295	2423	2550	2678	2805	2933	3060	3188

Ceiling 9 Feet High

Example: Cubical contents of room 10X14X9 = 1260 cu. ft.

Cubical contents of large rooms such as 17½X20X9 = cubical contents of two rooms 8½X20X9 and 9X20X9 = 1530+1620 = 3150 cu. ft.

Width / Length — 9 Ft. Ceiling

Width	4	4½	5	5½	6	6½	7	7½	8	8½	9	9½	10	10½	11	11½	12	12½	13	13½	14	14½	15	16	17	18	19	20	21	22	23	24	25
4	144	162	180	198	216	234	252	270	288	306	324	342	360	378	396	414	432	450	468	486	504	522	540	576	612	648	684	720	756	792	828	864	900
4½	162	182	203	223	243	263	284	304	324	344	365	385	405	425	446	466	486	506	527	547	567	587	608	648	689	729	770	810	851	891	932	972	1013
5	180	203	225	248	270	293	315	338	360	383	405	428	450	473	495	518	540	563	585	608	630	653	675	720	765	810	855	900	945	990	1035	1080	1125
5½	198	223	248	272	297	322	347	371	396	421	446	470	495	520	545	569	594	619	644	668	693	718	743	792	842	891	941	990	1040	1089	1139	1188	1238
6	216	243	270	297	324	351	378	405	432	459	486	513	540	567	594	621	648	675	702	729	756	783	810	864	918	972	1026	1080	1134	1188	1242	1296	1350
6½	234	263	293	322	351	380	410	439	468	497	527	556	585	614	644	673	702	731	761	790	819	848	878	936	995	1053	1112	1170	1229	1287	1346	1404	1463
7	252	284	315	347	378	410	441	473	504	536	567	599	630	662	693	725	756	788	819	851	882	914	945	1008	1071	1134	1197	1260	1323	1386	1449	1512	1575
7½	270	304	338	371	405	439	473	506	540	574	608	641	675	709	743	776	810	844	878	911	945	979	1013	1080	1148	1215	1283	1350	1418	1485	1553	1620	1688
8	288	324	360	396	432	468	504	540	576	612	648	684	720	756	792	828	864	900	936	972	1008	1044	1080	1152	1224	1296	1368	1440	1512	1584	1656	1728	1800
8½	306	344	383	421	459	497	536	574	612	650	689	727	765	803	842	880	918	956	995	1033	1071	1109	1148	1224	1301	1377	1454	1530	1607	1683	1760	1836	1913
9	324	365	405	446	486	527	567	608	648	689	729	770	810	851	891	932	972	1013	1053	1094	1134	1175	1215	1296	1377	1458	1539	1620	1701	1782	1863	1944	2025
9½	342	385	428	470	513	556	599	641	684	727	770	812	855	898	940	983	1026	1069	1111	1154	1197	1240	1282	1368	1453	1539	1625	1710	1796	1881	1967	2052	2138
10	360	405	450	495	540	585	630	675	720	765	810	855	900	945	990	1035	1080	1125	1170	1215	1260	1305	1350	1440	1530	1620	1710	1800	1890	1980	2070	2160	2250
10½	378	425	473	520	567	614	662	709	756	803	851	898	945	992	1040	1087	1134	1181	1229	1276	1323	1370	1418	1512	1607	1701	1796	1890	1985	2079	2174	2268	2363
11	396	446	495	545	594	644	693	743	792	842	891	940	990	1040	1089	1139	1188	1238	1287	1337	1386	1436	1485	1584	1683	1782	1881	1980	2079	2178	2277	2376	2475
11½	414	466	518	569	621	673	725	776	828	880	932	983	1035	1087	1139	1190	1242	1294	1346	1397	1449	1501	1553	1656	1760	1863	1967	2070	2174	2277	2381	2484	2588
12	432	486	540	594	648	702	756	810	864	918	972	1026	1080	1134	1188	1242	1296	1350	1404	1458	1512	1566	1620	1728	1836	1944	2052	2160	2268	2376	2484	2592	2700
13	468	527	585	644	702	761	819	878	936	995	1053	1111	1170	1229	1287	1346	1404	1463	1521	1580	1638	1697	1755	1872	1989	2106	2223	2340	2457	2574	2691	2808	2925
14	504	567	630	693	756	819	882	945	1008	1071	1134	1197	1260	1323	1386	1449	1512	1575	1638	1701	1764	1827	1890	2016	2142	2268	2394	2520	2646	2772	2898	3024	3150
15	540	608	675	743	810	878	945	1013	1080	1148	1215	1282	1350	1418	1485	1553	1620	1688	1755	1823	1890	1958	2025	2160	2295	2430	2565	2700	2835	2970	3105	3240	3375

Ceiling 9½ Feet High

Example: Cubical contents of room 8X14½X9½ = 1102 cu. ft.

Cubical contents of large rooms such as 25X24X9½ = cubical contents of two rooms 15X24X9½ and 10X24X9½ = 3420+2280 = 5700 cu. ft.

Width / Length — 9½ Ft. Ceiling

Width	4	4½	5	5½	6	6½	7	7½	8	8½	9	9½	10	10½	11	11½	12	12½	13	13½	14	14½	15	16	17	18	19	20	21	22	23	24	25
4	152	171	190	209	228	247	266	285	304	323	342	361	380	399	418	437	456	475	494	513	532	551	570	608	646	684	722	760	798	836	874	912	950
4½	171	192	213	235	256	277	299	320	342	363	384	406	427	448	470	491	513	534	555	577	598	610	641	684	726	769	812	855	897	940	983	1026	1069
5	190	213	237	261	285	308	332	356	380	403	427	451	475	498	522	547	570	593	617	641	665	688	712	760	807	855	902	950	997	1045	1092	1140	1187
5½	209	235	261	287	313	339	365	391	418	444	470	496	522	548	574	600	627	653	679	705	731	757	783	836	888	940	993	1045	1097	1149	1201	1254	1306
6	228	256	285	313	342	370	399	427	456	484	513	541	570	598	627	655	684	712	741	769	798	826	855	912	969	1026	1083	1140	1197	1254	1311	1368	1425
6½	247	277	308	339	370	401	432	463	494	524	555	586	617	648	679	710	741	771	802	833	864	895	926	988	1049	1111	1173	1235	1296	1358	1420	1482	1543
7	266	299	332	365	399	432	465	498	532	565	598	631	665	698	731	764	798	831	864	897	931	964	997	1064	1130	1197	1263	1330	1396	1463	1529	1596	1662
7½	285	320	356	391	427	463	498	534	570	605	641	676	712	748	783	819	855	890	926	961	997	1033	1068	1140	1211	1282	1353	1425	1496	1567	1638	1710	1781
8	304	342	380	418	456	494	532	570	608	646	684	722	760	798	836	874	912	950	988	1026	1064	1102	1140	1216	1292	1368	1444	1520	1596	1672	1748	1824	1900
8½	323	363	403	444	484	524	565	605	646	686	726	767	807	847	888	928	969	1009	1049	1090	1130	1170	1211	1292	1372	1453	1534	1615	1695	1776	1857	1938	2018
9	342	384	427	470	513	555	598	641	684	726	767	812	855	897	940	982	1026	1068	1111	1154	1197	1239	1282	1368	1453	1539	1624	1710	1795	1881	1967	2052	2137
9½	361	406	451	496	541	586	631	676	722	767	812	857	902	947	992	1038	1083	1128	1173	1218	1263	1308	1353	1444	1534	1624	1714	1805	1895	1985	2075	2166	2256
10	380	427	475	522	570	617	665	712	760	807	855	902	950	997	1045	1092	1140	1187	1235	1282	1330	1377	1425	1520	1615	1710	1805	1900	1995	2090	2185	2280	2375
10½	399	448	498	548	598	648	698	748	798	847	897	947	997	1047	1097	1147	1197	1246	1296	1346	1396	1446	1496	1596	1695	1795	1895	1995	2094	2194	2294	2394	2493
11	418	470	522	574	627	679	731	783	836	888	940	992	1045	1097	1149	1201	1254	1306	1358	1410	1463	1515	1567	1672	1776	1881	1986	2090	2194	2299	2403	2508	2612
11½	437	491	547	600	655	710	764	819	874	928	982	1038	1092	1147	1201	1256	1311	1365	1420	1474	1529	1584	1638	1748	1857	1966	2075	2185	2295	2403	2512	2622	2731
12	456	513	570	627	684	741	798	855	912	969	1026	1083	1140	1197	1254	1311	1368	1425	1482	1539	1596	1653	1710	1824	1938	2052	2166	2280	2394	2507	2622	2736	2850
13	494	555	617	679	741	802	864	926	988	1049	1111	1173	1235	1296	1358	1420	1482	1543	1605	1667	1729	1790	1852	1976	2099	2223	2346	2470	2593	2717	2840	2964	3087
14	532	598	665	731	798	864	931	997	1064	1130	1197	1263	1330	1396	1463	1529	1596	1663	1729	1795	1862	1928	1995	2128	2261	2394	2527	2660	2793	2926	3059	3192	3325
15	570	641	712	783	855	926	997	1068	1140	1211	1282	1353	1425	1496	1567	1638	1710	1781	1852	1923	1995	2066	2137	2280	2422	2565	2707	2850	2992	3135	3277	3420	3652

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Cubical Contents of Rooms—Continued from preceding page.

Ceiling 10 Feet High

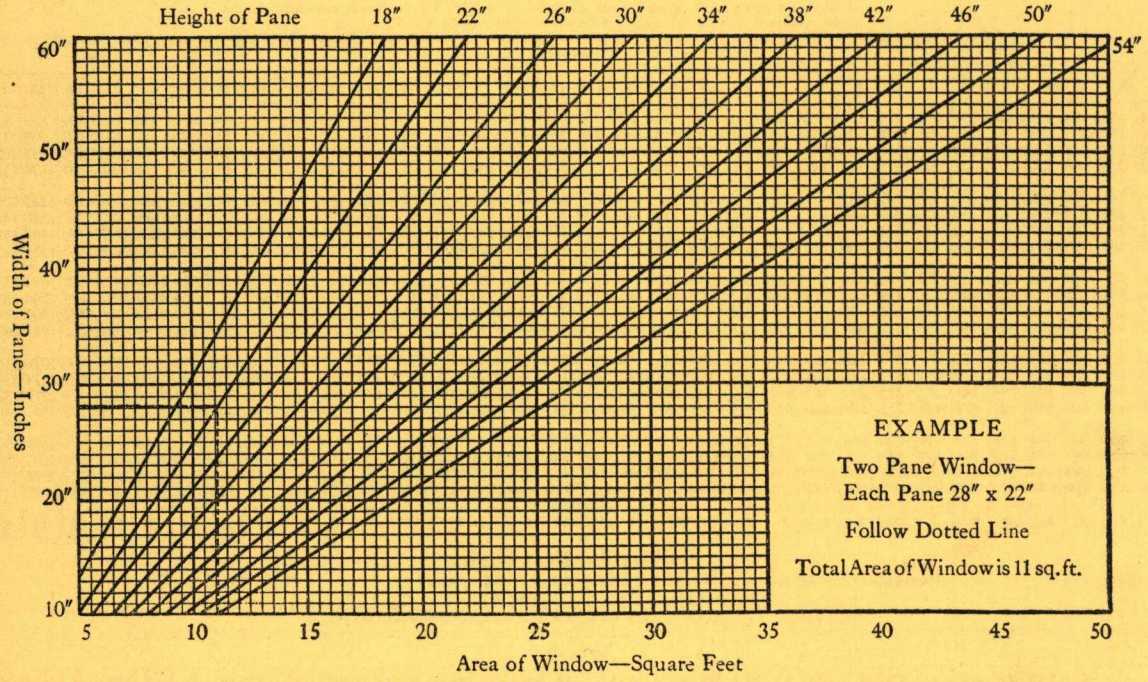
Example: Cubical contents of room 10½ X12½ X10 = 1313 cu. ft.
Cubical contents of large rooms such as 17½ X20 X10 = cubical contents of two rooms 10 X20 X10 and 7½ X20 X10 = 2000+1500 = 3500 cu. ft.

Width \ Length	4	4½	5	5½	6	6½	7	7½	8	8½	9	9½	10	10½	11	11½	12	12½	13	13½	14	14½	15	16	17	18	19	20	21	22	23	24	25
4	160	180	200	220	240	260	280	300	320	340	360	380	400	420	440	460	480	500	520	540	560	580	600	640	680	720	760	800	840	880	920	960	1000
4½	180	203	225	248	270	293	315	338	360	383	405	428	450	473	495	518	540	563	585	608	630	653	675	720	765	810	855	900	945	990	1035	1080	1125
5	200	225	250	275	300	325	350	375	400	425	450	475	500	525	550	575	600	625	650	675	700	725	750	800	850	900	950	1000	1050	1100	1150	1200	1250
5½	220	248	275	303	330	358	385	413	440	468	495	523	550	578	605	633	660	688	715	743	770	798	825	880	935	990	1045	1100	1155	1210	1265	1320	1375
6	240	270	300	330	360	390	420	450	480	510	540	570	600	630	660	690	720	750	780	810	840	870	900	960	1020	1080	1140	1200	1260	1320	1380	1440	1500
6½	260	293	325	358	390	423	455	488	520	553	585	618	650	683	715	748	780	813	845	878	910	943	975	1040	1105	1170	1235	1300	1365	1430	1495	1560	1625
7	280	315	350	385	420	455	490	525	560	595	630	665	700	735	770	805	840	875	910	945	980	1015	1050	1120	1190	1260	1330	1400	1470	1540	1610	1680	1750
7½	300	338	375	413	450	488	525	563	600	638	675	713	750	788	825	863	900	938	975	1013	1050	1088	1125	1200	1275	1350	1425	1500	1575	1650	1725	1800	1875
8	320	360	400	440	480	520	560	600	640	680	720	760	800	840	880	920	960	1000	1040	1080	1120	1160	1200	1280	1360	1440	1520	1600	1680	1760	1840	1920	2000
8½	340	383	425	468	510	563	595	638	680	723	765	808	850	893	935	978	1020	1063	1105	1148	1190	1233	1275	1360	1445	1530	1615	1700	1785	1870	1955	2040	2125
9	360	405	450	495	540	585	630	675	720	765	810	855	900	945	990	1035	1080	1125	1170	1215	1260	1305	1350	1440	1530	1620	1710	1800	1890	1980	2070	2160	2250
9½	380	428	475	523	570	618	665	713	760	808	855	903	950	998	1045	1093	1140	1188	1235	1283	1330	1378	1425	1520	1615	1710	1805	1900	1995	2090	2185	2280	2375
10	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
10½	420	473	525	578	630	683	735	788	840	893	945	998	1050	1103	1155	1208	1260	1313	1365	1418	1470	1523	1575	1680	1785	1890	1995	2100	2205	2310	2415	2520	2625
11	440	495	550	605	660	715	770	825	880	935	990	1045	1100	1155	1210	1265	1320	1375	1430	1485	1540	1595	1650	1760	1870	1980	2090	2200	2310	2420	2530	2640	2750
11½	460	518	575	633	690	748	805	863	920	978	1035	1093	1150	1208	1265	1323	1380	1438	1495	1553	1610	1668	1725	1840	1955	2070	2185	2300	2415	2530	2645	2760	2875
12	480	540	600	660	720	780	840	900	960	1020	1080	1140	1200	1260	1320	1380	1440	1500	1560	1620	1680	1740	1800	1920	2040	2160	2280	2400	2520	2640	2760	2880	3000
13	520	585	650	715	780	845	910	975	1040	1105	1170	1235	1300	1365	1430	1495	1560	1625	1690	1755	1820	1885	1950	2080	2210	2340	2470	2600	2730	2860	2990	3120	3250
14	560	630	700	770	840	910	980	1050	1120	1190	1260	1330	1400	1470	1540	1610	1680	1750	1820	1890	1960	2030	2100	2240	2380	2520	2660	2800	2940	3080	3220	3360	3500
15	600	675	750	825	900	975	1050	1125	1200	1275	1350	1425	1500	1575	1650	1725	1800	1875	1950	2025	2100	2175	2250	2400	2550	2700	2850	3000	3150	3300	3450	3600	3750

10 Ft. Ceiling

Area of Windows Including Sash

(United States Radiator Corp., Detroit, Mich.)



Fahrenheit and Centigrade Thermometer Scales

(Buckeye Iron & Brass Works, Dayton, Ohio)

To convert Fahrenheit into Centigrade: Subract 32 from Fahrenheit, divide remainder by 9, and multiply by 5.
To convert Centigrade into Fahrenheit: Divide by 5, multiply by 9, and add 32.

F	C	F	C	F	C	F	C	F	C	F	C
−40	−40	55	12.8	150	65.6	400	204.4	1350	732	2300	1260
−35	−37.2	60	15.6	155	68.3	450	232.2	1400	760	2350	1287.5
−30	−34.4	65	18.3	160	71.1	500	260	1450	788	2400	1315.5
−25	−31.7	70	21.1	165	73.9	550	287.8	1500	816	2450	1343
−20	−28.9	75	23.9	170	76.7	600	315.6	1550	844	2500	1371
−15	−26.1	80	26.7	175	79.4	650	343.3	1600	872	2550	1399
−10	−23.3	85	29.4	180	82.2	700	371.1	1650	899	2600	1426.5
− 5	−20.6	90	32.2	185	85	750	398.9	1700	926	2650	1455
0	−17.8	95	35	190	87.8	800	426.7	1750	954	2700	1483
5	−15	100	37.8	195	90.6	850	454.4	1800	982	2750	1510
10	−12.2	105	40.6	200	93.3	900	482.2	1850	1010	2800	1537.5
15	− 9.4	110	43.3	205	96.1	950	510	1900	1038	2850	1565
20	− 6.7	115	46.1	210	98.9	1000	537.8	1950	1065.5	2900	1593
25	− 3.9	120	48.9	212	100	1050	565.5	2000	1093	2950	1621
30	− 1.1	125	51.7	215	101.7	1100	593	2050	1121	3000	1648.5
32	0	130	54.4	225	107.2	1150	621	2100	1149	3050	1676
35	1.7	135	57.2	250	121.2	1200	648.5	2150	1176.5	3100	1705
40	4.4	140	60	300	148.9	1250	676.5	2200	1204	3150	1732
45	7.2	145	62.8	350	176.7	1300	704	2250	1232	3200	1760
50	10										

Equivalent Values of Electrical, Mechanical and Heat Units

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Unit	Equivalent Value in Other Units
1 K.W.-Hour =	1,000 watt-hours. 1.341 horsepower-hours. 2,655,200 ft.-lb. 3,600,000 joules. 3,415 heat-units. 367,100 kilogram-meters. 0.234 lb. carbon oxidized with perfect efficiency. 3.52 lb. water evap. from and at 212° F. 22.77 lb. of water raised from 62° to 212° F.
1 H.P.-Hour =	0.7457 K.W.-hour. 1,980,000 ft.-lb. 2,546.5 heat-units. 273,740 kilogram-meters. 0.174 lb. carbon oxidized with perfect efficiency. 2.62 lb. water evap. from and at 212° F. 17.0 lb. water raised from 62° F. to 212° F.
1 Kilowatt =	1,000 watts. 1.3410 horsepower. 2,655,200 ft.-lb. per hour. 44,254 ft.-lb. per minute. 737.56 ft.-lb. per second. 3,415 heat-units per hour. 56.92 heat-units per minute. 0.9486 heat-units per second. 0.234 lb. carbon oxidized per hour. 3.52 lb. water evap. per hr. from and at 212° F.

Unit	Equivalent Value in Other Units
1 H.P. =	745.7 watts. 0.7457 K.W. 33,000 ft.-lb. per minute. 550 ft.-lb. per second. 2,546.5 heat-units per hour. 42.44 heat-units per minute. 0.707 heat-units per second. 0.174 lb. carbon oxidized per hour. 2.62 lb. water evap. per hour from and at 212° F.
1 Joule =	1 watt second. 0.000000278 K.W.-hour. 0.10197 kilogram-meter. 0.0009486 heat-units. 0.73756 ft.-lb.
1 Ft.-lb. =	1.3558 joules. 0.13826 kilogram-meter. 0.0000003766 K.W.-hour. 0.0012861 heat-unit. 0.0000005 H.P.-hour.
1 Watt =	1 joule per second. 0.001341 H.P. 3.415 heat-units per hour. 0.73756 ft.-lb. per second. 0.0035 lb. water evap. per hr. 44.254 ft.-lb. per minute.
1 Watt per sq. in. =	8.20 heat-units per sq. ft. per minute. 6,373 ft.-lb. per sq. ft. per min. 0.1931 H.P. per sq. ft.

Unit	Equivalent Value in Other Units
1 Heat-unit =	1,054.2 watt-seconds. 777.54 ft.-lb. 107.5 kilogram-meters. 0.0002928 K.W.-hour. 0.0003927 H.P.-hour. 0.0000685 lb. carbon oxidized. 0.001030 lb. water evap. from and at 212° F.
1 Heat-unit per Sq. Ft. per min. =	0.1220 watt per sq. in. 0.01757 K.W. per sq. ft. 0.02356 H.P. per sq. ft.
1 Kilogram-Meter =	7.233 ft.-lb. 0.000003653 H.P.-hour. 0.000002724 K.W.-hour. 0.009302 heat-unit.
1 lb. Carbon Oxidized with perfect efficiency =	14,600 heat-units. 1.11 lb. Anthracite coal oxidized. 2.5 lb. dry wood oxidized. 22 cu. ft. illuminating-gas. 4.275 K.W.-hour. 5.733 H.P.-hour. 11,352,000 ft.-lb. 15.05 lb. of water evap. from and at 212° F.
1 lb. Water Evap. from and at 212° F. =	0.2841 K.W.-hour. 0.3811 H.P.-hour. 970.4 heat-units. 104,320 kilogram-meter. 1,023,000 joules. 754,525 ft.-lb. 0.066466 lb. carbon oxidized.

Melting and Boiling Points, Degrees F., of the Chemical Elements

(Reprinted by permission from Kent's Mechanical Engineers' Handbook, Tenth Edition, published by John Wiley & Sons, Inc.)

Element	Melting Point	Boiling Point	Element	Melting Point	Boiling Point	Element	Melting Point	Boiling Point	Element	Melting Point	Boiling Point
Aluminum	1217.6	3272	Fluorine	−369	−304	Neodymium	1544?	.....	Silicon	2588	.....
Antimony	1166	2624	Gallium	86	.....	Neon	−423?	−398	Silver	1760.9	3551
Argon	−306	−303	Germanium	1756	.....	Nickel	2646.1	.....	Sodium	207.5	1382
Arsenic	1562	840*	Gold	1945.4	.....	Niobium	3092?	.....	Sulphur	224.2–235	832.3
Barium	1562	.....	Helium	<−456	−449	Nitrogen	−347.8	−319	Tantalum	5252	.....
Beryllium	2336	.....	Hydrogen	−434	−422.7	Osmium	4892?	.....	Tellurium	845.6	2534
Bismuth	520	2606	Indium	311	.....	Palladium	2822	.....	Thallium	575.6	2336
Boron	4000–4500	.....	Iodine	236.3	>392	Phosphorus	111.6	550.4	Thorium	>3092	.....
Bromine	18.8	141.8	Iridium	4262?	.....	Platinum	3191	7070	Tin	449.6	4118
Cadmium	609.8	1432	Iron	2786	4442	Potassium	144.1	1313.6	Titanium	3263	.....
Caesium	78.8	1238	Krypton	−272	−241	Praesodymium	1724	.....	Tungsten	6152	10,520
Calcium	1490	.....	Lanthanum	1490?	.....	Radium	1292	.....	Uranium	<3362	.....
Carbon	>6332*	.....	Lead	621	2777	Rhodium	3542	.....	Vanadium	3128	.....
Cerium	1184	.....	Lithium	366.8	2552	Rubidium	100.4	1284.8	Xenon	−220	−164
Chlorine	−150.7	−27.5	Magnesium	1204	2048	Ruthenium	4442?	.....	Yttrium	2714	.....
Chromium	2939	3992	Manganese	2246	3452	Samarium	2370–2550	.....	Zinc	786.9	1706
Cobalt	2714	.....	Mercury	−37.96	674.6	Selenium	422–428	1274	Zirconium	3092?	.....
Copper	1981.4	4190	Molybdenum	4595	6548						

*Sublimes.

Melting Points of Alloys

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Alloys of Tin, Lead and Bismuth

	Per Cent									
Lead	32.0	25.8	25.0	43.0	33.3	10.7	50.0	35.8	20.0	70.9
Tin	15.5	19.8	15.0	14.0	33.3	23.1	33.0	52.1	60.0	9.1
Bismuth	52.5	54.4	60.0	43.0	33.3	66.2	17.0	12.1	20.0	20.0
Solidifies at Deg. F	204.8	213.8	257.0	262.4	293.0	298.4	321.8	357.8	359.6	453.2

Low-Melting-Point Alloy

	Per Cent						
Cadmium	10.8	10.2	14.8	13.1	6.2	7.1	6.7
Tin	14.2	14.3	7.0	13.8	9.4	.....	.....
Lead	24.9	25.1	26.0	24.3	34.4	39.7	43.4
Bismuth	50.1	50.4	52.2	48.8	50.0	53.2	49.9
Solidifies at Deg. F	149.9	153.5	155.3	155.3	169.7	193.1	203.0

Mean Specific Heats of Various Solids and Liquids Between 32 and 212 Deg. Fahr.

(Reprinted by permission from Mark's Mechanical Engineers' Handbook, Third Edition, published by McGraw-Hill Book Co.

Solids	
Alloys:	
Bismuth-tin	0.040–0.045
Bell metal	0.086
Brass, yellow	0.0883
Brass, red	0.090
Bronze	0.104
Constantan	0.098
D'Arcet's metal	0.050
German silver	0.095
Lipowitz's metal	0.040
Nickel steel	0.109
Rose's metal	0.050
Solders (Pb and Sn)	0.040–0.045
Type metal	0.0388
Wood's metal	0.040
40 Pb+60 Bi	0.0317
25 Pb+75 Bi	0.030
Asbestos	0.20
Ashes	0.20
Basalt (lava)	0.20
Borax	0.229
Brick	0.22
Carbon—coke	0.203
Chalk	0.215
Charcoal	0.20
Cinders	0.18
Coal	0.314
Concrete	0.156
Cork	0.485
Corundum	0.198
Dolomite	0.222
Ebonite	0.33
Glass:	
Normal	0.199
Crown	0.16
Flint	0.12
Gneiss	0.18
Granite	0.195
Graphite	0.201
Gypsum	0.259
Hornblende	0.195
Humus (soil)	0.44
Ice	0.504
India Rubber (para)	0.27–0.48
Kaolin	0.224
Limestone	0.217
Marble	0.210
Oxides:	
Alumina (Al_2O_3)	0.183
Cu_2O	0.111
Lead oxide (PbO)	0.055
Lodestone	0.156
Magnesia	0.222
Magnetite (Fe_3O_4)	0.168
Silica	0.191
Soda	0.231
Zinc oxide (ZnO)	0.125
Paraffin wax	0.69
Porcelain	0.22
Quartz	0.17–0.28
Quicklime	0.217
Salt, rock	0.21
Sand	0.195
Sandstone	0.22
Serpentine	0.25
Sulphur	0.180
Talc	0.209
Tufa	0.33
Vulcanite	0.331
Wood:	
Fir	0.65
Oak	0.57
Pine	0.67
Liquids	
Acetic acid	0.51
Alcohol (absolute)	0.58
Aniline	0.49
Benzol	0.40
Chloroform	0.23
Ether	0.54
Fusel oil	0.56
Gasoline	0.50
Glycerine	0.58
Hydrochloric acid	0.60
Kerosene	0.50
Naphthalene	0.31
Machine oil	0.40
Mercury	0.033
Olive oil	0.40
Paraffin oil	0.52
Petroleum	0.50
Sulphuric acid	0.336
Sea water	0.94
Toluene	0.40
Turpentine	0.42
Molten metals:	
Bismuth (535-725 deg. fahr.)	0.036
Lead (590-680 deg. fahr.)	0.041
Sulphur (246-297 deg. fahr.)	0.235
Tin (460-660 deg. fahr.)	0.058

Useful Information Regarding Common Metals[1]

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Metal	Specific Gravity	Weight, Pounds per Cubic Foot	Weight, Pounds per Cubic Inch	Specific Heat, B.T.U. per Pound per Degree Fahrenheit	Melting Point, Degrees Fahrenheit	Modulus of Elasticity in 1,000,000 Pounds per Square Inch	
						Tension and Compression	Shear and Torsion
Aluminum	2.56	160	0.0927	0.218	1218	10 to 20	.....
Brass	8.40	524	0.303	0.094	1600 to 1800	13 to 17	.....
Bronze	8.85	552	0.320	0.104	1600 to 1800	10	.....
Copper	8.93	558	0.323	0.093	1981	10 to 15	.....
Iron, grey cast	7.22	450	0.260	0.130	2450	15	6
Iron, wrought	7.70	480	0.280	0.114	2912	27	10
Lead	11.37	710	0.411	0.031	621	.....	.....
Mercury (60° F.)	13.59	847	0.490	0.032	—39.5	.....	.....
Monel	8.80	550	0.318	0.128	2480	22 to 23	9.5
Nickel	8.84	552	0.319	0.109	2646	30 to 33	10 to 11
Solder, plumber's	10.03	624	0.361	0.043	360	.....	.....
Steel	7.85	490	0.283	0.117	2500	30	12
Steel, stainless	7.75	484	0.277	0.125	2750	28 to 30	12.5
Tin	7.35	458	0.265	0.055	450	3 to 6	.....
Zinc	7.15	447	0.259	0.094	787	12 to 17	.....

[1]Average values at atmospheric pressures or temperatures.

Wire and Sheet Metal Gages

(Diameters and Thicknesses in Decimal Parts of an Inch)

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Gage Number	American Wire Gage, or Brown and Sharpe (for copper wire)	Steel Wire Gage, or Washburn and Moen or Roebling (for steel wire)	Birmingham Wire Gage (B.W.G.) or Stubs Iron Wire (for steel wire or sheets)	Stubs' Steel Wire Gage	British Imperial Standard Wire Gage (S.W.G.)	U. S. Standard Gage for Sheet Metal (iron and steel) 1893	Trenton Iron Co.	British Standard for Iron and Steel, Sheets and Hoops 1914 (B.G.)
0000000	.....	0.4900	.....	.....	0.500	0.500	.....	0.6666
000000	.....	0.4615	.....	.....	0.464	0.469	.....	0.625
00000	.....	0.4305	.....	.....	0.432	0.438	0.450	0.5883
0000	0.460	0.3938	0.454	.....	0.400	0.406	0.400	0.5416
000	0.410	0.3625	0.425	.....	0.372	0.375	0.360	0.5000
00	0.365	0.3310	0.380	.....	0.348	0.344	0.330	0.4452
0	0.325	0.3065	0.340	.....	0.324	0.312	0.305	0.3964
1	0.289	0.2830	0.300	0.227	0.300	0.281	0.285	0.3532
2	0.258	0.2625	0.284	0.219	0.276	0.266	0.265	0.3147
3	0.229	0.2437	0.259	0.212	0.252	0.250	0.245	0.2804
4	0.204	0.2253	0.238	0.207	0.232	0.234	0.225	0.2500
5	0.182	0.2070	0.220	0.204	0.212	0.219	0.205	0.2225
6	0.162	0.1920	0.203	0.201	0.192	0.203	0.190	0.1981
7	0.144	0.1770	0.180	0.199	0.176	0.188	0.175	0.1764
8	0.128	0.1620	0.165	0.197	0.160	0.172	0.160	0.1570
9	0.114	0.1483	0.148	0.194	1.144	0.156	0.145	0.1398
10	0.102	0.1350	0.134	0.191	0.128	0.141	0.130	0.1250
11	0.091	0.1205	0.120	0.188	0.116	0.125	0.1175	0.1113
12	0.081	0.1055	0.109	0.185	0.104	0.109	0.105	0.0991
13	0.072	0.0915	0.095	0.182	0.092	0.094	0.0925	0.0882
14	0.064	0.0800	0.083	0.180	0.080	0.078	0.080	0.0785
15	0.057	0.0720	0.072	0.178	0.072	0.070	0.070	0.0699
16	0.051	0.0625	0.065	0.175	0.064	0.062	0.061	0.0625
17	0.045	0.0540	0.058	0.172	0.056	0.056	0.0525	0.0556
18	0.040	0.0475	0.049	0.168	0.048	0.050	0.045	0.0495
19	0.036	0.0410	0.042	0.164	0.040	0.0438	0.040	0.0440
20	0.032	0.0348	0.035	0.161	0.036	0.0375	0.035	0.0392
21	0.0285	0.0317	0.032	0.157	0.032	0.0344	0.031	0.0349
22	0.0253	0.0286	0.028	0.155	0.028	0.0312	0.028	0.0313
23	0.0226	0.0258	0.025	0.153	0.024	0.0281	0.025	0.0278
24	0.0201	0.0230	0.022	0.151	0.022	0.0250	0.0225	0.0248
25	0.0179	0.0204	0.020	0.148	0.020	0.0219	0.020	0.0220
26	0.0159	0.0181	0.018	0.146	0.018	0.0188	0.018	0.0196
27	0.0142	0.0173	0.016	0.143	0.0164	0.0172	0.017	0.0175
28	0.0126	0.0162	0.014	0.139	0.0148	0.0156	0.016	0.0156
29	0.0113	0.0150	0.013	0.134	0.0136	0.0141	0.015	0.0139
30	0.0100	0.0140	0.012	0.127	0.0124	0.0125	0.014	0.0123
31	0.0089	0.0132	0.010	0.120	0.0116	0.0109	0.013	0.0110
32	0.0080	0.0128	0.009	0.115	0.0108	0.0102	0.012	0.0098
33	0.0071	0.0118	0.008	0.112	0.0100	0.0094	0.011	0.0087
34	0.0063	0.0104	0.007	0.110	0.0092	0.0086	0.010	0.0077
35	0.0056	0.0095	0.005	0.108	0.0084	0.0078	0.0095	0.0069
36	0.0050	0.0090	0.004	0.106	0.0076	0.0070	0.009	0.0061
37	0.0045	0.0085	.....	0.103	0.0068	0.0066	0.0085	0.0054
38	0.0040	0.0080	.....	0.101	0.0060	0.0062	0.008	0.0048
39	0.0035	0.0075	.....	0.099	0.0052	.....	0.0075	0.0043
40	0.0031	0.0070	.....	0.097	0.0048	.....	0.007	0.0039
41	.....	0.0066	.....	0.095	0.0044	.....	.....	0.0034
42	.....	0.0062	.....	0.092	0.0040	.....	.....	0.0031
43	.....	0.0060	.....	0.088	0.0036	.....	.....	0.0027
44	.....	0.0058	.....	0.085	0.0032	.....	.....	0.0024
45	.....	0.0055	.....	0.081	0.0028	.....	.....	0.0022
46	.....	0.0052	.....	0.079	0.0024	.....	.....	0.0019
47	.....	0.0050	.....	0.077	0.0020	.....	.....	0.0017
48	.....	0.0048	.....	0.075	0.0016	.....	.....	0.0015
49	.....	0.0046	.....	0.072	0.0012	.....	.....	0.0014
50	.....	0.0044	.....	0.069	0.0010	.....	.....	0.0012

Strength of Materials

Materials	Tension Pounds Per Sq. In.	Compression Pounds Per Sq. In.
Alum.-Bronze, 10% Alum.	85,000	
Alum. Bronze, 1¼% Alum.	28,000	
Brass, Cast	22,000	10,300
Brass, Wire	49,000	
Bronze or Gun Metal	36,000	
Copper, Cast	19,000	
Sheet	30,000	
Wire	49,000– 67,000	
Iron, Cast	13,400– 29,000	82,000–145,000
Wrought	46,000– 54,000	36,000– 40,000
Lead, Sheet	3,300	
Steel, Cast	61,000–120,000	
Rivet	50,000– 60,000	
Axle	75,000– 90,000	
Wire	200,000–240,000	
Boiler	55,000– 65,000	
Soft open hearth	52,000– 62,000	
Brickwork		
Ordinary		300– 500
Cement		450– 1,000
Cement, Portland, 1 to 1		5,000–10,000
Neat	550–650	
Granite and Limestone		8,000–25,000
Sandstones		6,000–10,000
Glass (Common)	4,800	20,000–40,000
Ash (Wood)	11,000– 17,000	4,400– 9,400
Hemp Ropes	12,000– 16,000	
Hickory	12,800– 18,000	8,900
Oak (White)	10,000– 20,000	4,600– 9,500
Pine (Yellow)	12,000– 19,200	5,400– 9,500
Chestnut	10,500	5,350– 5,600
Locust	20,500– 25,000	9,100–11,700
Spruce	10,000– 19,500	5,000– 7,800

Weight of Materials

Materials	Spec. Gravity	Lb. per Cu. Ft.	Lb. per Cu. In.
Aluminum, Cast	2.56	159.6	.0924
Aluminum, Sheet, rod or wire	2.67	166.5	.0963
Antimony	6.76	421.6	.2439
Bismuth	9.82	612.4	.3544
Brass, Cast (70% Cu.)	8.4	523.8	.3031
Bronze (90% Cu.)	8.85	552.	.3195
Copper, Sheet or wire	8.93	556.8	.3222
Iron, Cast	7.218	450.	.2604
Iron, Wrought	7.70	480.	.2779
Lead, Cast	11.38	709.7	.4106
Mercury (60°)	13.58	846.8	.4900
Platinum	21.50	1342.13	.7767
Silver (Standard)	10.312	644.	.371
Steel-Bessemer	7.854	489.6	.2834
Tin, Pure	7.29	455.1	.2634
Zinc	7.0	436.5	.2526
Glass	2.62	163.4	.0945
Coal in Storage		52.	

Metals

Weight per Square Foot in Pounds

(The American Pin Co., Waterbury, Conn.)

Thickness Inches	Cast Iron	Steel	Copper	Brass	Lead	Zinc
1-16	2.34	2.55	2.89	2.67	3.69	2.34
1-8	4.69	5.10	5.78	5.35	7.38	4.68
3-16	7.03	7.66	8.67	8.02	11.07	7.02
1-4	9.38	10.21	11.56	10.70	14.76	9.36
5-16	11.73	12.76	14.45	13.37	18.45	11.70
3-8	14.07	15.31	17.34	16.05	22.14	14.04
7-16	16.42	17.87	20.23	18.72	25.83	16.34
1-2	18.77	20.42	23.12	21.40	29.53	18.72
9-16	21.11	22.97	26.01	24.07	33.22	21.08
5-8	23.46	25.52	28.90	26.75	36.91	23.44
11-16	25.81	28.08	31.97	29.42	40.60	25.80
3-4	28.15	30.63	34.68	32.10	44.29	28.13
13-16	30.50	33.18	37.57	35.19	47.98	30.49
7-8	32.85	35.73	40.69	38.28	51.67	32.81
15-16	35.19	28.28	43.35	41.37	55.37	35.17
1	37.54	40.83	46.25	43.75	59.06	37.50

Symbols for Plumbing

The Symbols on this and the following page are taken from the February 23, 1929, issue of DOMESTIC ENGINEERING. They were recommended by Sub-Committee No. 6 Graphical Symbols on Drawings of the Sectional Committee on Drawings and Drafting Room Practice, American Standards Association. George H. Drake of Buffalo, Chairman of the Standardization Committee of the National Association of Master Plumbers has released them for publication.

The above recommendation was made after the Symbols had been submitted to the leading architects and engineers in every section of the United States and the benefit of their criticisms received by the Sub-Committee.

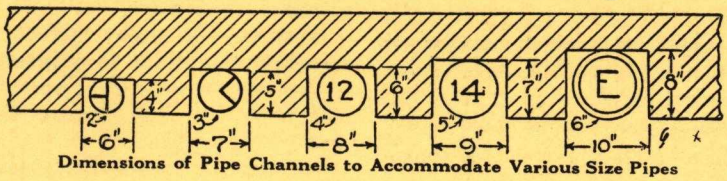
It is hoped that master plumbers, architects, sanitary engineers and all others who have anything to do with plumbing drawings will adopt these symbols and so use the same language in their drawing work.

Symbols for Fixtures

Character	Plan	Character	Plan	Character	Plan	Character	Plan	Character	Plan
Corner Tub		Hot Water Tank	HW T	Laundry Trays		Stall Urinal		Wall Lavatory	
Built-in Tub		Water Heater	WH	Combination Sink and Tray	S. T.	Trough Urinal		Corner Lavatory	
Roll Rim Tub		R. & L. Drain-Board Kitchen Sink		Combination Sink and Dishwasher		Hose Rack	H.R.	Manicure Lavatory	
Shower Stall		L.Hand Drain-board Kitchen Sink		Washing Machine	W.M.	Hose Bib	H.B.	Dental Lavatory	D.LAV.
Sitz Bath	S.B.	Plain Kitchen Sink		Water Closet		Gas Outlet	G.	Pedestal Drinking Fountain	D.R.F.
Foot Bath	F.B.	Wash Sink	W.S.	Wall Urinal		Vacuum Outlet	VAC.		
Bidet	B	Slop Sink	S.S.	Pedestal Urinal		Pedestal Lavatory		Wall Hung Drinking Fountain	D.R.F.

Symbols for Exposed Piping

Character	Plan	Line	Band	Color	Character	Plan	Line	Band	Color
Sanitary Sewerage			SAN	Blue	Circ. Hot City Water			CR	White
Soil Stack	24		SS	Blue	Chilled Drink. Water			DW	White
Waste Stack	17		WS	Blue	Fire Line			FL	Red
Vent Stack	18		VS	Blue	Cold Industrial Water			CI	Yellow
Combined Sewerage			CS	Blue	Hot Industrial Water			HI	Yellow
Storm Sewerage			STORM	Green	Cir. Hot Indus. Water			IR	Yellow
Roof Leader	E		RL	Green	Air	A		A	Gray
Indirect Waste			IW	Green	Gas	G		G	Brown
Industrial Sewerage			IS	Green	Oil			O	Black
Acid or Chemical Waste			AW	Green	Vacuum Cleaner	V		V	Cream
Cold City Water			CW	White	Local or Surface Vent			LV	Tan
Hot City Water			HW	White					



Dimensions of Pipe Channels to Accommodate Various Size Pipes

Symbols for Drains

Character	Plan	Character	Plan	Character	Plan	Character	Plan	Character	Plan
Floor Drain		Garage Drain		Refrigerator Drain		Cleanout	C.O.	Oil Separator	
Shower Drain		Floor Drain with Backwater Valve		Roof Sump		Grease Separator			

Simplified Practice Recommendation No. 52

Staple Vitreous China Plumbing Fixtures

In accordance with the unanimous action on September 22, 1926, of a general conference of representatives of manufacturers, distributors, and users the Department of Commerce, through the Bureau of Standards, recommends the establishment of the following standards for staple vitreous china plumbing fixtures:

General

1. The nomenclature, definitions, grading rules, types, sizes, dimensions, and general practices given herein are recommended as standard.

2. Types and sizes of water-closet bowls, tanks, and lavatories not specifically mentioned shall be considered as special.

3. Catalogues displaying vitreous china plumbing fixtures should, as near as possible, conform to recommended standard items and where specials are exhibited they should be so indicated.

Grading Rules

4. Vitreous china plumbing fixtures shall be graded in accordance with the grading rules as given herein.

5. Vitreous china plumbing fixtures are made of materials mined from the earth, containing metallic elements and foreign matter which cannot be entirely eliminated in practice. As they are made and finished by hand, and subjected to a high degree of heat, it is an accepted fact that they cannot be regularly produced free from unimportant variations and minor blemishes.

6. Careful inspection is employed in each department of manufacture and each of the imperfections listed herein as acceptable under the "regular selection" grading is caused by some unavoidable condition in the manufacturing process. Perfection is not guaranteed nor commercially possible.

7. The blemishes permitted under the grading rules do not affect the utility or value of the fixture.

8. The terms "regular selection" and "culls" shall be used to replace the terms "grade A" and "grade B" for grading vitreous china plumbing fixtures, as it is recognized that the terms "grade A" and "grade B" are confusing to the trade and to the consumer.

9. Ware which grades below "regular selection" shall be classified as "culls."

Nomenclature and Definitions

Blister—A raised uncolored portion of the surface, 1/32 (0.031) inch and less than 1/8 (0.125) inch in maximum dimension.

Large Blister—A raised uncolored portion of the surface 1/8 (0.125) inch to 1/4 (0.25) inch, inclusive, in maximum dimension.

Bubble—An uncolored raised portion of the surface or a sand speck smaller than 1/32 (0.031) inch in maximum dimension.

Craze—Fine cracks in the glaze.

Culls—Ware which grades below "regular selection."

Discoloration—A colored spot over 1/4 (0.25) inch in maximum dimension, or a sufficient number of specks or spots to give the effect of a change in color.

Dull or Eggshell Finish—Dead or flat finish. Undeveloped glaze. A semiglazed finish with numerous very fine pinholes or slightly matted in appearance. Not glossy.

Dunt—A hair-line fracture extending through the body, and due to strains set up in the process of manufacture.

Exposed Body—Unglazed portion 1/16 (0.063) inch in maximum dimension or over.

Finish—Texture and condition of surface other than color.

Fire Check—Fine shallow crack in the body not covered with glaze. (When sufficiently covered with glaze as to be easily cleaned, it is not detrimental.)

Flushing Surface—The surface which may be wet during the operation of the fixture.

Pinhole—Unglazed portion of body, or small hole under 1/16 (0.063) inch in maximum dimension.

Polishing Mark—A spot not larger than 3/8 (0.375) inch in maximum dimension where some minor blemish has been ground off and the surface polished.

Pottery Square—A square 2 inches on each side. For grading purposes may be a 2-inch square hole cut in a small sheet of any flexible material, such as rubber or paper, for convenience in sliding over irregular surfaces to determine segregation.

Projection—A raised uncolored portion of the surface over 1/4 (0.25) inch in maximum dimension.

Regular Selection—First-class ware in conformity with the limitations of the grading rules.

Roughing in Measurement—Dimension from finished wall or floor to center of waste or supply opening.

Segregation—More than four spots, blisters, or pinholes in any "pottery square."

Speck—A colored portion less than 1/32 (0.031) inch in maximum dimension. Specks less than 1/100 (0.01) inch in maximum dimension, unless in sufficient number to form a discoloration, are not counted.

Spot—A colored portion of the surface 1/32 (0.031) inch and less than 1/8 (0.125) inch in maximum dimension.

Large Spot—A colored portion 1/8 (0.125) inch to 1/4 (0.25) inch, inclusive, in maximum dimension.

Spud—Threaded brass connection inserted in the vitreous chinaware.

Streak—A slight defect in the finish giving an appearance similar to painters' brush marks.

Visible Surface—The surface readily visible after installation of the fixture by an observer in normal standing position.

Vitreous China Plumbing Fixtures—The term "vitreous china" shall be applied only to such plumbing fixtures as will pass the following red-ink test:

A fractured piece of material taken from any part of a vitreous china plumbing fixture, after being immersed in red anilin ink of good color strength for one hour, shall not show any discoloration through the glaze and shall not show absorption when broken to a depth greater than 1/8 inch below the surface of fracture at any point.

WATER-CLOSET BOWL — The term "water-closet bowl" is the accepted general term applicable to such fixtures.

REVERSE TRAP—The term "reverse trap" shall be applied only to water-closet bowls having back supply; integral flushing rim; a minimum water seal of 2½ inches; a minimum water area of 8¾ by 7½ inches; a siphon trap way at the rear of closet which shall pass a 1½ inch diameter solid ball; and a minimum weight of 38 pounds.

REVERSE TRAP, WITH JET—Same as reverse trap, with jet added.

SIPHON JET—The term "siphon jet" shall be applied only to water-closet bowls having top supply, integral flushing rim and jet; a minimum water area of 12 by 10 inches; a minimum depth of seal of 3 inches; a siphon trap way which shall pass a 2⅛-inch diameter solid ball; minimum horizontal over-all dimensions of 14 by 23 inches; and a minimum weight of 48 pounds.

WASH DOWN—The term "wash down" shall be applied only to water-closet bowls having back supply; integral flushing rim; a minimum water area of 8 by 7 inches; a minimum water seal of 2½ inches; a siphon trap way at the front of closet which will pass a 1½-inch diameter solid ball; and a minimum weight of 34 pounds.

WASH DOWN, WITH JET—Same as wash down, with jet added.

WATER AREA—Elliptical area of the still water in the water-closet bowl, when filled to the top of the dam.

WAVY FINISH—A defect in the finish having the appearance of numerous runs in the glaze; irregular or mottled.

10. Examine the well hole closely for excess glaze spots, blisters, pinholes, etc. With eyes about 2 feet directly above rim, rock the bowl first to one side and then the other to an angle of about 45°, then tilt backward at the same angle, noting only the defects which can be observed in those positions. Minor blemishes which are not observed in this operation are assumed to be on unseen surfaces. Examine the remainder of the bowl for dunts, craze, or other serious defects.

NOTE.—It is not intended that inspectors shall measure or count any blemishes except in case of doubt, since with practice dimensional limits and numbers can be readily gauged by eye.

Table 1—Water-closet Bowls

Location	Blemish or Defect	Regular Selection
General	Dull or eggshell area	Not over 4 square inches.
	Wavy finish	Not more than 4 square inches.
	Excess glaze	Not more than ⅛ inch thick in well.
	Warpage	Not noticeably warped when seat is attached.
	Large blisters	Not more than 2.
	Dunts	None allowed.
	Projections	Do.
Flushing surface	Exposed body	Do.
	Unglazed fire check	Do.
	Spots, blisters or pinholes	No segregation; a total of not over 10.
	Bubbles or specks	Not over 10 in one "pottery square;" a total of not over 25.
	Exposed body	Not over ¼ (0.25) inch on foot; not over ⅛ (0.125) inch on more prominent surfaces.
Visible surface	Unglazed fire check	Not over ½ inch long.
	Spots, blisters or pinholes	No segregation; a total of not over 10.
	Bubbles or specks	Not over 5 in one "pottery square"; a total of not over 25.

11. Water-closet bowls are graded in accordance with the maximum blemishes listed. See Table 1.

12. Bowls having more than the maximum grading limit permissible for "Regular Selection" on any one blemish shall be classified as "Culls."

13. Low tanks are installed at a level where blemishes are more readily visible than on water-closet bowls and although less likely to become soiled are graded about as closely for appearance. Tanks and covers are graded separately on an equal basis for segregation of blemishes. The covers shall be limited to about ½ the total blemishes permitted for tanks. No blemishes on the inside surface are counted. Minor blemishes on the outside surface, hidden by the cover, are not counted. Examination should be made with the eyes of the observer about 2 feet from the surface observed.

14. Low tanks are graded in accordance with the maximum blemishes listed. See Table 2.

15. Low tanks having more than the maximum grading limit permissible for "regular Selection" on any one blemish shall be classified as "culls."

Table 2—Low Tanks

Location	Blemish or Defect	Regulation Selection
General	Warpage	Not noticeably warped.
	Dunts	None allowed.
	Dull or eggshell area	Not over 2 square inches.
	Wavy finish	Not more than 4 square inches.
	Exposed body	Not over ⅛ (0.125) inch.
Visible surface	Unglazed fire check	Not over ¼ inch long.
	Spots, blisters or pinholes	No segregation; a total of not over 10.
	Bubbles or specks	Not over 5 in 1 "pottery square"; a total of not over 25.

NOTE.—Covers showing more than 50 per cent of the allowable number of blemishes listed for low tanks shall be classified as "culls."

Method of Grading Vitreous China Lavatories, Pedestals and Legs

16. Since lavatories are installed at a level where blemishes are more readily noticeable than on water-closet bowls and tanks, they should be graded more closely than any other vitreous china fixture.

17. Lavatories should be examined with the eyes of observer about 2 feet from the surface observed.

18. The top of slab, front apron, inside of bowl, and face of back of lavatories with back are most important. Sides should not be subjected to the same rigid inspection.

19. Warpage tests are made at factory by use of horizontal plane, this being a level table upon which lavatory is allowed to rest, face down, and tested with thickness gauges placed between lavatory and table.

20. Pedestals and legs are graded the same as water-closet bowls.

21. Pedestals and legs are not to be warped out of perpendicular line more than one-half inch. To be free from rough projections. No exposed body over one-half inch.

22. Vitreous china lavatories are graded in accordance with the maximum blemishes listed in Table 3; any vitreous china lavatory having more than the maximum grading limit permissible for "regular selection" on any one blemish shall be classified as a "cull."

Grading Rules for Other Vitreous China Plumbing Fixtures

23. The grading rules for water-closet bowls shall apply to slop sinks, clinic sinks and bidets.

24. The grading rules for, and method of grading lavatories, pedestals and legs shall apply to drinking fountains, manicure tables and toilet tables.

25. All vitreous china plumbing fixtures not specifically mentioned in the foregoing shall take the grading rules for water-closet bowls.

Table 3—Vitreous China Lavatories

Location	Blemish or Defect	Regular Selection
General	Dunts	None allowed.
	Craze	Do.
	Warpage	On 24 by 20 inch lavatories and larger, warpage of slab out of horizontal plane not to exceed ⅜ inch. On smaller than 24-inch lavatories, warpage of slab out of horizontal plane not to exceed ¼ inch. (The same deviation to apply on lavatories with back, when attached to wall.)
	Dull or eggshell	One allowed; not over ½ inch.
Service space, top of slab, inside of bowl, and front of apron.	Exposed body	None allowed.
	Unglazed fire check	Do.
	Spots, blisters and pinholes	No segregation; a total of not more than 8.
	Bubbles or specks	Not more than 3 in 1 "pottery square" a total of not more than 8.
	Polishing mark	No segregation; not more than 2 allowed.
Face of integral back and sides.	Dull or eggshell	One allowed; not over ½ inch.
	Exposed body	None over ½ inch; not more than 2 allowed.
	Large blisters	Not more than 2 on either side or back; a total of not more than 6.
	Unglazed fire check	None on back; not more than 1 on either side.
	Spots, blisters and pinholes	No segregation; not more than 5 on either side or back. A total of not more than 15.
	Bubbles or specks	Not more than 4 in 1 "pottery square"; a total of not more than 12.

Marking and Labeling

26. Water-closet bowls, tanks, tank covers, lavatories, and all other vitreous china plumbing fixtures shall bear the trade-mark or name of the actual manufacturer and the words "Made in U. S. A.," applied in such manner as to be permanent and visible after installation. It is recommended that no name, brand, or label other than that of the actual manufacturer be used on the ware.

27. "Regular selection" labels shall be used only on such ware as conforms to the requirements for "regular selection," as set forth in the grading rules. No label shall be used on ware which grades lower than "regular selection." Labels shall be applied only at the factory.

28. The following wording shall be used on labels for "regular selection" ware:

This is a high-class and valuable piece of vitreous china and should be handled as such. This piece has been classified as "regular selection" after a thorough inspection by competent and experienced men. The term "regular selection" does not mean that this article is without blemish. It is impossible to make vitreous china plumbing fixtures without flaws of some kind and these have not been overlooked in the grading of this article.

This piece has been graded in accordance with uniform grading rules adopted by the Sanitary Potteries in conjunction with the United States Bureau of Standards of the Department of Commerce.

29. Culls shall be marked by the maker with two parallel lines cut through the glaze into the body of the ware at the location (see Fig. 1) recommended by the Manufacturers' Advisory Committee on Vitreous China Plumbing Fixtures. These cuts shall be filled with a bright red varnish or enamel which is resistant to the action of hot water.

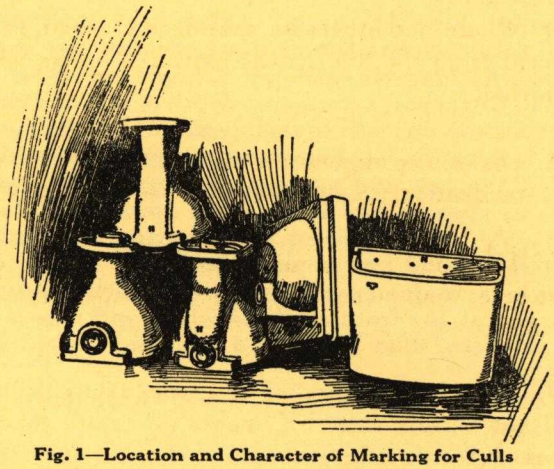


Fig. 1—Location and Character of Marking for Culls

30. All crates containing "culls" shall be marked with two splashes of red on one end of the crate so as to be visible without tearing down stacks.

Dimensional Standards

31. The standard size for spuds on all water-closet bowls shall be as follows: 2 inches for all closet bowls operated under low-down tanks; 1½ inches for all other installations.

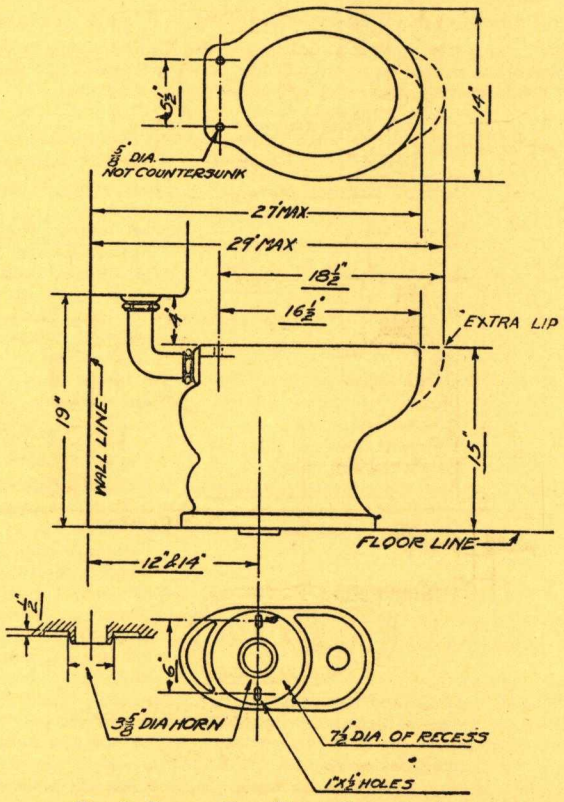


Fig. 2—Reverse Trap Water-Closet Bowls

32. Soap-dish depressions shall be used on all lavatories to and including the 24-inch size, but not on larger sizes.

33. Wherever soap-dish depressions are used on slabs of lavatories, they shall be located on the left-hand side as one faces the lavatory and shall be approximately 3¼ inches long, by 2¼ inches wide, by ⅛ inch deep at the deepest point, and shall drain into bowl.

34. Where not otherwise specified, a variation of 5 per cent from the dimensions indicated herein will be permitted.

35. Underlined dimensions in Figures 2 to 9, inclusive, are identical for all sizes and types of similar items.

36. The total thickness of lavatories at faucet or valve holes shall be not less than ½ inch nor more than 1¼ inches.

37. The total thickness of lavatories at waste outlets shall not be less than 1¼ inches nor more than 1⅞ inches.

38. Supply pipes to floor for standard wash-down combinations are furnished 19 inches long.

Standard Types and Sizes

39. The following items are recommended as standard for the industry and constitute a reduction to 58 from the previous 441 items.

Staple Floor Outlet Siphon Jet Closet With Silencing Chamber:

Top supply, regular bowl.
Extended top supply, regular bowl.
Top supply, extended lip.
Extended top supply, extended lip.

Staple Floor Outlet Siphon Jet Closet:

Top supply, regular bowl (regular height).
Extended top supply, regular bowl (regular height).
Top supply, extended lip (regular height).
Extended top supply, extended lip (regular height).
Top supply, extended lip (juvenile height).

Wall Hanging Siphon Jet Closet:

Top supply, extended lip.
Back supply, extended lip.
Side supply, extended lip.

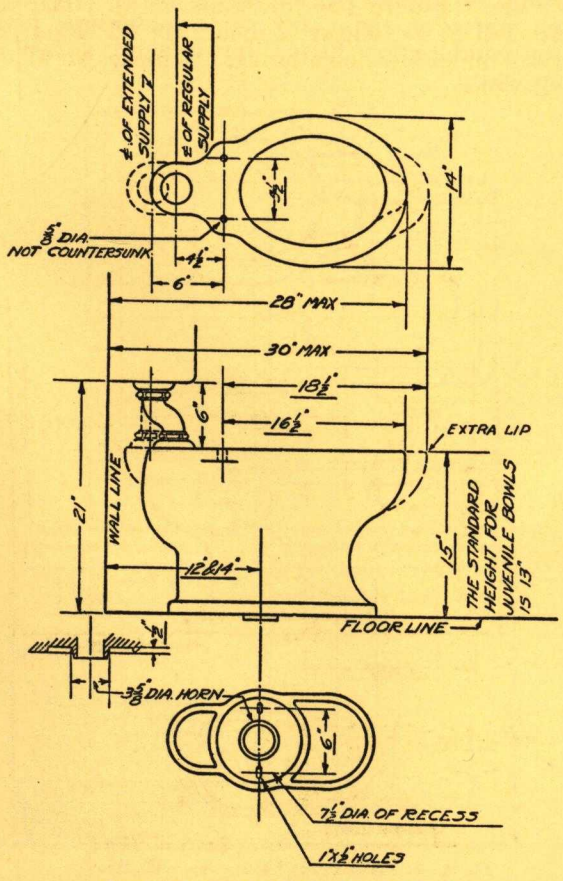


Fig. 3—Siphon Jet Water-Closet Bowls

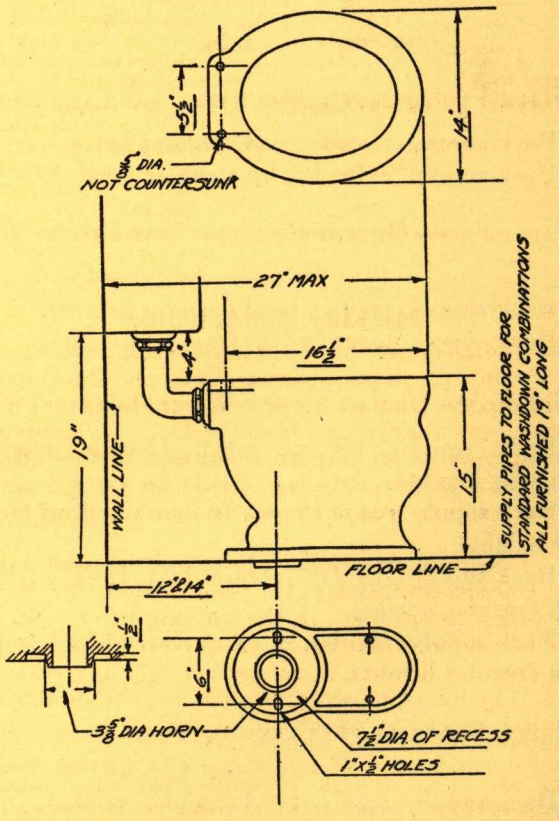


Fig. 4—Wash-Down Water-Closet Bowls

STAPLE FLOOR OUTLET SIPHON JET WITH RAISED REAR VENT:

Top supply, extended lip (regular height).
Top supply, extended lip (juvenile height).

WALL HANGING SIPHON JET CLOSET WITH RAISED REAR VENT:

Top supply, extended lip.
Back supply, extended lip.
Side supply, extended lip.

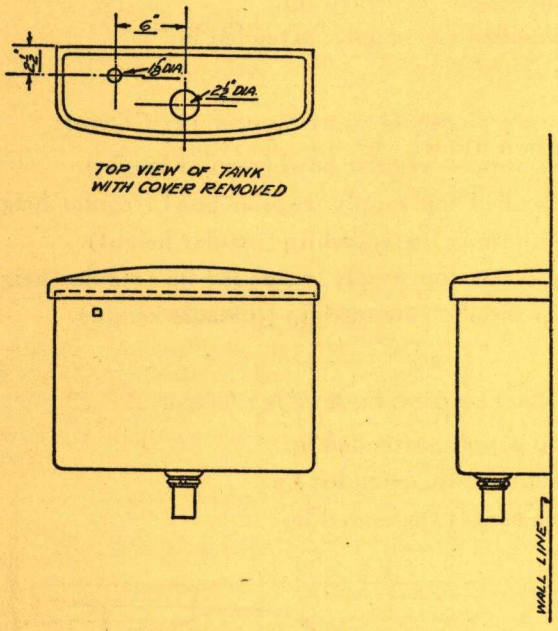


Fig. 5—Low Tanks

STAPLE FLOOR OUTLET REVERSE TRAP CLOSET:

Back supply, regular bowl (regular height).
Back supply, extended lip (regular height).

STAPLE FLOOR OUTLET REVERSE TRAP CLOSET WITH JET:

Back supply, regular bowl (regular height).
Back supply, extended lip (regular height).

STAPLE FLOOR OUTLET SIPHON WASH DOWN:

Back supply, regular bowl, 12-inch roughing (regular height).
Back supply, regular bowl, 14-inch roughing (regular height).
Back supply, regular, integral seat, 12-inch roughing (regular height).
Back supply, regular, integral seat, 14-inch roughing (regular height).

STAPLE FLOOR OUTLET SIPHON WASH DOWN WITH JET:

Back supply, regular bowl (regular height).

WALL HANGING BLOW-OUT CLOSET:

Back supply, extended lip.
Side supply, extended lip.
Back supply, extended lip, integral seat.
Side supply, extended lip, integral seat.

WALL HANGING BLOW-OUT CLOSET WITH RAISED REAR VENT:

Back supply, extended lip.
Side supply, extended lip.

LOW-DOWN TANK WITH UPPER LEFT-HAND LEVER:

Small (approximately 6-gallon capacity).
Large (approximately 8-gallon capacity).

HIGH-UP TANKS, WITH CENTER OUTLET AND OVER TOP SUPPLY. WHERE USED, LEVER SHALL BE ON LEFT SIDE.

Small (approximately 3-gallon capacity).
Large (approximately 6-gallon capacity).

NOTE.—The above action eliminates all side supply water-closet bowls of the floor type and all wash-down water-closet bowls with extended lip.

Lavatories

40. It is recommended that all lavatories be made with an overflow; that standardized supply and waste punchings be limited (a) for two lavatory faucets and pop-up waste or chain-stay or combination fitting; (b) for combination fitting for integral nozzle and pop-up waste.

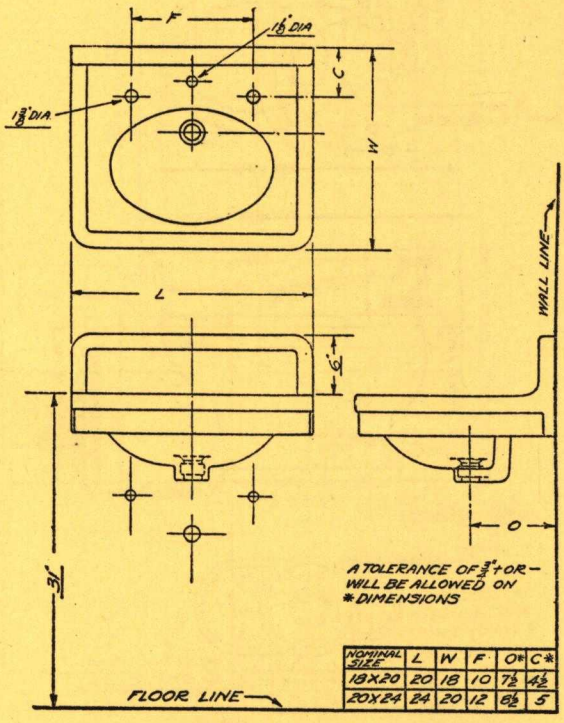
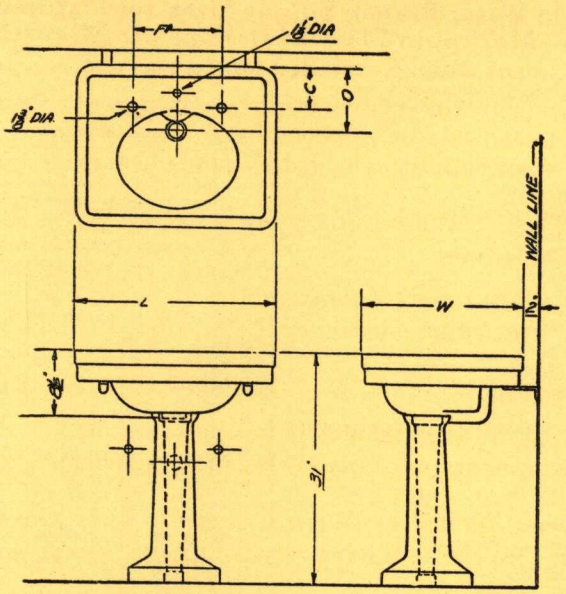


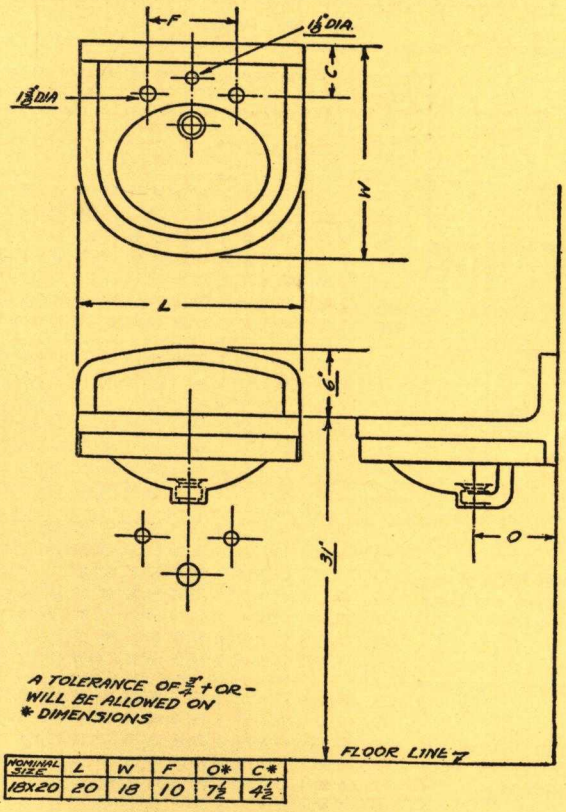
Fig. 6—Straight Front Lavatories, with Back



NOMINAL SIZE	L	W	F	O*	C*
18X20	20	18	10	7½	3½
20X24	24	20	12	7½	4½
22X27	27	22	12	8½	5½
24X30	30	24	12	9½	6½

A TOLERANCE OF ¾" + OR − WILL BE ALLOWED ON * DIMENSIONS

Fig. 7—Straight Front Lavatories, without Back



A TOLERANCE OF ¾" + OR − WILL BE ALLOWED ON * DIMENSIONS

NOMINAL SIZE	L	W	F	O*	C*
18X20	20	18	10	7½	4½

Fig. 8—Round Front Lavatories, with Back

STRAIGHT FRONT LAVATORY:

18 inches by 20 inches, with back.

18 inches by 20 inches, without back.

20 inches by 24 inches, with back.

20 inches by 24 inches, without back.

22 inches by 27 inches, without back.

24 inches by 30 inches, without back.

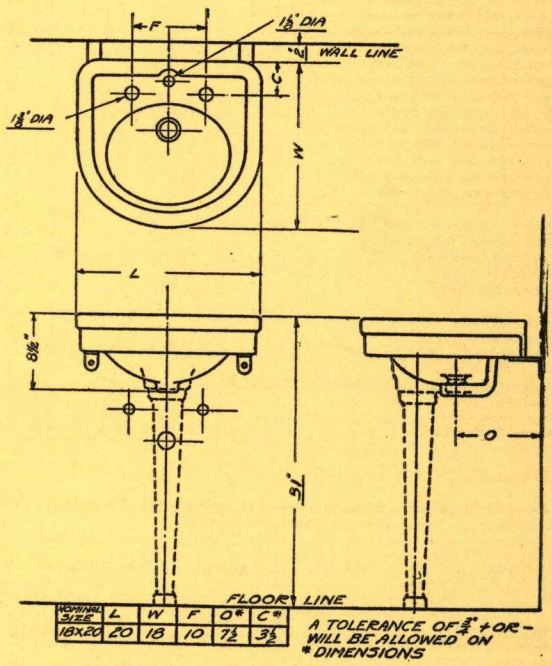
ROUND FRONT LAVATORY:

18 inches by 20 inches, with back.

18 inches by 20 inches, without back.

ROUND FRONT CORNER LAVATORY:

17 inches by 17 inches, with back.



NOMINAL SIZE	L	W	F	O*	C*
18X20	20	18	10	7½	3½

A TOLERANCE OF ¾" + OR − WILL BE ALLOWED ON * DIMENSIONS

Fig. 9—Round Front Lavatories, without Back

This recommendation is to be effective from October 1, 1926, subject to revision by the standing committee of the industry.

Promulgation recommended.

R. M. HUDSON,
Chief, Division of Simplified Practice

Promulgated.

GEORGE K. BURGESS,
Director, Bureau of Standards.

APPROVED September 30, 1926.

HERBERT HOOVER,
Secretary of Commerce.

Rates of Discharge from Faucets

Tests by Harold E. Babbit, Bulletin 178 Engineering Experiment Station, University of Illinois.

Type of Faucet	Discharge in gallons per minute for pressure of			
	6 in. of water	5 lb. per square inch	30 lb. per square inch	90 lb. per square inch
¾-inch Compression sink faucet:				
Wide open	1.8	8.1	20.0	33.4
¾ open	1.8	.....	19.5	32.8
½ open	1.8	7.6	19.0	32.9
¼ open	1.5	7.0	17.4	29.9
½-inch compression sink faucet, wide open	1.4	6.0	14.8	24.5
½-inch compression sink faucet, wide open	1.2	5.6	13.6	23.4
½-inch compression sink faucet, wide open	1.4	6.1	15.5	27.0
½-inch ground key sink faucet, wide open	2.2	9.5	23.4	36.4
¾-inch ground key sink faucet, wide open	3.0	13.8	31.7	51.0
¾-inch compression sink faucet, wide open	2.0	9.0	22.1	36.0
½-inch self-closing compression faucet, wide open	0.6	2.6	6.8	11.7
⅜-inch ground key sink faucet, wide open	1.5	6.8	16.7	27.7
⅜-inch compression sink faucet, wide open	0.8	3.2	8.2	14.1
½-inch compression sink faucet, wide open	1.1	4.8	12.3	21.3
½-inch compression laundry tray faucet, open	1.4	6.3	17.3	25.3
Compression wash basin faucet, wide open	1.7	5.0	11.9	21.3
Compression wash basin faucet, wide open	1.9	6.4	15.6	27.6
1-inch ground key sink faucet, wide open	7.2	30.7	78.9	118.8
1-inch compression sink faucet, wide open	3.5	12.7	39.9	64.8
Combination laundry faucet compression:				
Both outlets wide open	2.3	9.6	22.4	38.6
Either hot or cold, wide open	1.4	6.1	14.4	24.8
Combination compression bath tub faucet:				
Both sides open, without nozzle	.....	8.0	20.4	34.4
Both sides open, with nozzle	1.5	5.9	14.3	24.8
Hot, open, cold closed, no nozzle	.....	4.3	11.1	19.9
Hot open, cold closed, with nozzle	.....	4.1	10.0	17.9
Cold open, hot closed, with nozzle	0.9	3.8	9.2	16.1
Cold open, hot closed, no nozzle	.....	.....	10.5	17.0
Combination compression bath tub faucet:				
Hot and cold open, with nozzle	0.94	4.8	11.9	19.4
Hot or cold open, with nozzle	0.96	3.8	9.3	15.9
Combination compression bath tub faucet:				
Hot and cold open, without nozzle	1.55	6.6	15.8	27.7
Hot and cold open, with nozzle	1.13	4.5	11.4	19.6
Hot or cold open, without nozzle	0.86	3.6	7.8	15.1
Hot or cold open, with nozzle	0.82	3.1	7.6	13.3
Combination compression sink faucet with swinging nozzle, straight connection:				
Hot and cold open	0.97	4.6	12.2	21.4
Hot open, cold closed	0.72	3.3	8.6	15.1
Cold open, hot closed	0.69	3.1	8.2	14.5
Combination, 90-deg. bends and vertical connection:				
Hot and cold open	1.21	4.9	12.3	21.2
Hot or cold open	0.78	3.4	8.3	14.4
Combination compression high goose-neck pantry sink:				
Hot and cold open	0.88	4.6	11.6	20.9
Hot open, cold closed	0.63	3.3	8.3	14.7
Cold open, hot closed	0.49	2.6	6.7	11.9

Gallons per hour hot and cold water demand in various types of buildings. Demand per day usually is about ten times the maximum hour demand.

Fixtures	Residences		Apartments		Office Bldgs.		Clubs	
	C.W.	H.W.	C.W.	H.W.	C.W.	H.W.	C.W.	H.W.
Waterclosets—F. V	5	0	5	0	30	0	30	0
Waterclosets—F. V	8	0	8	0	50	0	50	0
Urinals—F. V	.....	.....	.....	.....	20	0	20	0
Urinals—F. T	.....	.....	.....	.....	15	0	15	0
Urinals—Auto. Tanks	.....	.....	.....	.....	30	0	30	0
Urinals—Perf. Pipe per ft	.....	.....	.....	.....	.....	.....	.....	.....
Lavatories	½	1	½	1	½	1	1	3
Showers	10	20	10	20	.....	.....	100	200
Baths	10	20	10	20	.....	.....	8	15
Kitchen Sinks, etc	5	10	4	8	.....	.....	10	30
Wash Trays	10	15	5	10	.....	.....	15	30

Fixtures	Gymnasiums		Hotels		Factories		Schools	
	C.W.	H.W.	C.W.	H.W.	C.W.	H.W.	C.W.	H.W.
Waterclosets—F. V	30	0	20	0	30	0	20	0
Waterclosets—F. V	50	0	35	0	50	0	35	0
Urinals—F. V	20	0	14	0	20	0	20	0
Urinals—F. T	15	0	10	0	15	0	15	0
Urinals—Auto. Tanks	30	0	30	0	30	0	30	0
Urinals—Perf. Pipe per ft	.....	.....	.....	.....	5	0	4	0
Lavatories	1	4	1	3	5	10	½	1
Showers	25	250	35	70	125	250	25	75
Baths	16	32	7	14	.....	.....	.....	.....
Kitchen Sinks, etc	.....	.....	10	30	10	30	10	30
Wash Trays	.....	.....	20	40	.....	.....	.....	.....

Cold Water Branch Supply Sizes[1] for Fixtures and Maximum Flow[1] in Gallons per Minute[2]

Reprinted by permission from the Piping Handbook, by Walker and Crocker, published by McGraw-Hill Book Company, Inc.

	Number of Fixtures									
	1	2	4	8	12	16	24	32	40	
Water closets:										
Gallons per minute	8	16	24	48	60	80	96	128	150	Tanks
Pipe size	½	¾	1	1¼	1½	1½	2	2	2	
Gallons per minute	30	50	80	120	140	160	200	250	300	Flush valves
Pipe size	1	1¼	1½	2	2	2	2½	2½	2½	
Urinals:										
Gallons per minute	6	12	20	32	42	56	72	90	120	Tanks
Pipe size	½	¾	1	1¼	1¼	1¼	1½	2	2	
Gallons per minute	25	37	45	75	85	100	125	150	175	Flush valves
Pipe size	1	1¼	1¼	1½	1½	2	2	2	2	
Lavatories and wash sinks, based upon each faucet:										
Gallons per minute	4	8	12	24	30	40	48	64	75	
Pipe size	½	½	¾	1	1	¼	¼	½	½	
Bathtubs:										
Gallons per minute	15	30	40	80	96	112	144	192	240	
Pipe size	¾	1	1¼	1½	2	2	2	2½	2½	
Shower baths:										
Gallons per minute	8	16	32	64	96	128	192	256	320	8 in rain head
Pipe size	½	¾	1¼	1½	2	2	2½	2½	3	
Acid and shop sinks, manufacturing, kitchen and laundry:										
Gallons per minute	15	25	40	64	84	96	120	150	200	per bibb
Pipe size	¾	1	1¼	1½	1½	2	2	2	2½	per bibb

[1]The above sizes are based upon a pressure drop of 30 lb. per 100 ft.

In estimating risers and mains, the number of gallons for water closets and urinals where flush valves are used are to be as given for tanks.

The hot water faucets are to be disregarded when estimating cold-water risers and mains.

[2]A. S. H. V. E. Guide.

Flow of Water in House Service Pipes

(To find the discharge in gallons, multiply by 7.47)

Thomson Meter Corporation

Condition of Discharge	Pressure in Main Pounds, per Square Inch	Discharge in Cubic Feet per Minute from the Pipe — Nominal Diameters of Iron or Lead Service Pipe in Inches								
		½	⅝	¾	1	1½	2	3	4	6
Through 35 ft. of service pipe; no back-pressure.	30	1.10	1.92	3.01	6.13	16.58	33.34	88.16	173.85	444.63
	40	1.27	2.22	3.48	7.08	19.14	38.50	101.80	200.75	513.42
	50	1.42	2.48	3.89	7.92	21.40	43.04	113.82	224.44	574.02
	60	1.56	2.71	4.26	8.67	23.44	47.15	124.68	245.87	628.81
	75	1.74	3.03	4.77	9.70	26.21	52.71	139.39	274.89	702.03
	100	2.01	3.50	5.50	11.20	30.27	60.87	160.96	317.41	811.79
	130	2.29	3.99	6.28	12.77	34.51	69.40	183.52	361.91	925.58
Through 100 ft. of service pipe; no back-pressure.	30	0.66	1.16	1.84	3.78	10.40	21.30	58.19	118.13	317.23
	40	0.77	1.34	2.12	4.36	12.01	24.59	67.19	136.41	366.30
	50	0.86	1.50	2.37	4.88	13.43	27.50	75.13	152.51	409.54
	60	0.94	1.65	2.60	5.34	14.71	30.12	82.30	167.06	448.63
	75	1.05	1.84	2.91	5.97	16.45	33.68	92.01	186.78	501.58
	100	1.22	2.13	3.36	6.90	18.99	38.89	106.24	215.68	579.18
	130	1.39	2.42	3.83	7.86	21.66	44.34	121.14	245.91	660.36
Through 100 ft. of service pipe and 15-ft. vertical rise.	30	0.55	0.96	1.52	3.11	8.57	17.55	47.90	97.17	260.56
	40	0.66	1.15	1.81	3.72	10.24	20.95	57.20	116.01	311.09
	50	0.75	1.31	2.06	4.24	11.67	23.87	65.18	132.20	354.49
	60	0.83	1.45	2.29	4.70	12.94	26.48	72.28	146.61	393.13
	75	0.94	1.64	2.59	5.32	14.64	29.96	81.79	165.90	444.85
	100	1.10	1.92	3.02	6.21	17.10	35.00	95.55	193.82	519.72
	130	1.26	2.20	3.48	7.14	19.66	40.23	109.82	222.75	597.31
Through 100 ft. of service pipe and 30-ft. vertical rise.	30	0.44	0.77	1.22	2.50	6.80	14.11	38.63	78.54	211.54
	40	0.55	0.97	1.53	3.15	8.68	17.79	48.68	98.98	266.59
	50	0.65	1.14	1.79	3.69	10.16	20.82	56.98	115.87	312.08
	60	0.73	1.28	2.02	4.15	11.45	23.47	64.22	130.59	351.73
	75	0.84	1.47	2.32	4.77	13.15	26.95	73.76	149.99	403.98
	100	1.00	1.74	2.75	5.65	15.58	31.93	87.38	177.67	478.55
	130	1.15	2.02	3.19	6.55	18.07	37.02	101.33	206.04	554.96

Weight of Water and Heat Units per Pound at Different Temperatures

(Reprinted by permission from Kent's Mechanical Engineers Hand Book, Tenth Edition, published by John Wiley & Sons, Inc.)

Temperature Degree F.	Weight Pounds per Cubic Foot	Heat-Units	Temperature Degree F.	Weight Pounds per Cubic Foot	Heat-Units	Temperature Degree F.	Weight Pounds per Cubic Foot	Heat-Units
32	62.42	0.	93	62.10	61.02	153	61.12	120.88
33	62.42	1.01	94	62.09	62.02	154	61.10	121.88
34	62.42	2.01	95	62.08	63.01	155	61.08	122.88
35	62.42	3.02	96	62.07	64.01	156	61.06	123.88
36	62.42	4.03	97	62.06	65.01	157	61.04	124.88
37	62.42	5.04	98	62.05	66.01	158	61.02	125.88
38	62.42	6.04	99	62.03	67.00	159	61.00	126.88
39	62.42	7.05	100	62.02	68.00	160	60.98	127.88
40	62.42	8.05	101	62.01	69.00	161	60.96	128.87
41	62.42	9.06	102	62.00	69.99	162	60.94	129.87
42	62.42	10.06	103	61.99	70.99	163	60.92	130.87
43	62.42	11.06	104	61.97	71.99	164	60.90	131.87
44	62.42	12.07	105	61.96	72.98	165	60.87	132.88
45	62.42	13.07	106	61.95	73.99	166	60.85	133.88
46	62.42	14.07	107	61.93	74.98	167	60.83	134.88
47	62.42	15.07	108	61.92	75.97	168	60.81	135.88
48	62.41	16.07	109	61.91	76.97	169	60.79	136.88
49	62.41	17.08	110	61.89	77.97	170	60.77	137.88
50	62.41	18.08	111	61.88	78.96	171	60.75	138.88
51	62.41	19.08	112	61.86	79.96	172	60.73	139.88
52	62.40	20.08	113	61.85	80.96	173	60.70	140.88
53	62.40	21.08	114	61.83	81.96	174	60.68	141.88
54	62.40	22.08	115	61.82	82.95	175	60.66	142.88
55	62.39	23.08	116	61.80	83.95	176	60.64	143.89
56	62.39	24.08	117	61.78	84.95	177	60.62	144.89
57	62.39	25.08	118	61.77	85.94	178	60.59	145.89
58	62.38	26.08	119	61.75	86.94	179	60.57	146.89
59	62.38	27.08	120	61.74	87.94	180	60.55	147.89
60	62.37	28.08	121	61.72	88.93	181	60.53	148.89
61	62.37	29.08	122	61.70	89.93	182	60.50	149.89
62	62.36	30.08	123	61.68	90.93	183	60.48	150.90
63	62.36	31.08	124	61.67	91.93	184	60.46	151.90
64	62.35	32.08	125	61.65	92.92	185	60.44	152.90
65	62.34	33.08	126	61.63	93.92	186	60.41	153.90
66	62.34	34.08	127	61.61	94.92	187	60.39	154.91
67	62.33	35.08	128	61.60	95.92	188	60.37	155.91
68	62.33	36.08	129	61.58	96.91	189	60.34	156.91
69	62.32	37.07	130	61.56	97.91	190	60.32	157.91
70	62.31	38.07	131	61.54	98.91	191	60.29	158.92
71	62.31	39.07	132	61.52	99.91	192	60.27	159.92
72	62.30	40.07	133	61.51	100.91	193	60.25	160.92
73	62.29	41.07	134	61.49	101.90	194	60.22	161.92
74	62.28	42.07	135	61.47	102.90	195	60.20	163.93
75	62.28	43.06	136	61.45	103.90	196	60.17	163.93
76	62.27	44.06	137	61.43	104.90	197	60.15	164.93
77	62.26	45.06	138	61.41	105.90	198	60.12	165.94
78	62.25	46.06	139	61.39	106.90	199	60.10	166.94
79	62.24	47.06	140	61.37	107.89	200	60.07	167.95
80	62.23	48.05	141	61.36	108.89	201	60.05	168.95
81	62.22	49.05	142	61.34	109.89	202	60.02	169.95
82	62.21	50.05	143	61.32	110.89	203	60.00	170.96
83	62.20	51.05	144	61.30	111.89	204	59.97	171.96
84	62.19	52.04	145	61.28	112.89	205	59.95	172.97
85	62.18	53.04	146	61.26	113.89	206	59.92	173.97
86	62.17	54.04	147	61.24	114.89	207	59.89	174.98
87	62.16	55.04	148	61.22	115.88	208	59.87	175.98
88	62.15	56.03	149	61.20	116.88	209	59.84	176.99
89	62.14	57.03	150	61.18	117.88	210	59.82	177.99
90	62.13	58.03	151	61.16	118.88	211	59.79	179.00
91	62.12	59.03	152	61.14	119.88	212	59.76	180.00
92	62.11	60.02						

Later authorities give figures for the weight of water which differs in the second decimal place only from those given above, as follows:

Temp., deg. F.....	40	50	60	70	80	90
Lb. per cu. ft.....	62.43	62.42	62.37	62.30	62.22	62.11
Temp., deg. F.....	100	110	120	130	140	150
Lb. per cu. ft.....	62.00	61.86	61.71	61.55	61.38	61.18
Temp., deg. F.....	160	170	180	190	200	210
Lb. per cu. ft.....	61.00	60.80	60.50	60.36	60.12	59.88

Hydraulics

Lbs. per sq. in. = 0.434 times head of water in feet.
Head in feet = 2.3 x pounds per square inch.
Weight per cubic foot of water = 62.4 lbs.
Weight per gallon of water = 8.33 lbs.
Loss of head H due to friction.

$$H = \frac{.02 \times L \times V2}{64.4\ D}$$

L = Length of pipe in feet; D = Diameter in feet; and V = Velocity of flow in feet per second. In calculating the total head to be pumped against, it is common to consider it equal to the sum of the friction head and the actual head.

Horse Power of Water Fall

$$H.P. = \frac{62.4 \times A \times V \times H}{33{,}000}$$

A = Cross-section in square feet of stream flowing over dam.
V = Velocity of flow in feet per minute.
H = Head of fall in feet.

Boiling Point of Water, Barometric Pressure and Air Pressure at Various Altitudes

(E. R. Pierce)

This table covers all the elevations in the United States where artificial heating is ever likely to be called for.

Sea Level Feet Above	Degrees Fahr. Water Boils	Inches of Mercury Barometer	Pressure per Square Inch Pounds	Total Air Pressure Per Square Ft. Pounds
0	212	29.905	14.7	2116.8
500	211	29.331	14.395	2072.8
1000	210	28.751	14.11	2031.8
1500	209	28.180	13.83	1991.5
2000	208	27.618	13.55	1951.2
2500	207	27.066	13.28	1912.3
3000	206	26.523	13.02	1874.8
3500	205	25.990	12.56	1839.1
4000	204	25.465	12.498	1799.7
4500	203	24.949	12.24	1762.6
5000	202	24.442	11.99	1727.4
5280—1 mile	201.56	24.160	11.86	1707.4
5840	201	23.943	11.75	1692.
6400	200	23.453	11.51	1657.4
6960	199	23.112	11.34	1633.
7520	198	22.473	11.03	1588.3
8080	197	21.983	10.79	1553.6
8640	196	21.493	10.53	1516.
9200	195	21.043	10.33	1487.
9760	194	20.603	10.11	1455.8
10320	193	20.172	9.9	1425.6
10880	192	19.649	9.64	1388.2
11440	191	19.241	9.44	1379.4
12000	190	18.883	9.26	1334.5
12560	189	18.423	9.04	1301.7
13120	188	18.024	8.84	1272.9
13680	187	17.635	8.66	1246.3
14240	186	17.253	8.47	1213.2
14800	185	16.879	8.22	1183.7
15360	184	16.521	8.11	1167.6

Pressure of Water at Different Heads

(Goulds Pumps, Inc., Seneca Falls, N. Y.)

Feet Head of Water and Equivalent Pressure

Feet Head	Pounds per Square Inch	Feet Head	Pounds per Square Inch	Feet Head	Pounds per Square Inch
1	.43	60	25.99	200	86.62
2	.87	70	30.32	225	97.45
3	1.30	80	34.65	250	108.27
4	1.73	90	38.98	275	119.10
5	2.17	100	43.31	300	129.93
6	2.60	110	47.64	325	140.75
7	3.03	120	51.97	350	151.58
8	3.40	130	56.30	400	173.24
9	3.90	140	60.63	500	216.55
10	4.33	150	64.96	600	259.85
20	8.66	160	69.29	700	303.16
30	12.99	170	73.63	800	346.47
40	17.32	180	77.96	900	389.78
50	21.65	190	82.29	1,000	433.09

Pressure and Equivalent Feet Head of Water

Pounds per Square Inch	Feet Head	Pounds per Square Inch	Feet Head	Pounds per Square Inch	Feet Head
1	2.31	40	92.36	170	392.52
2	4.62	50	115.45	180	415.61
3	6.93	60	138.54	190	438.90
4	9.24	70	161.63	200	461.78
5	11.54	80	184.72	225	519.51
6	13.85	90	207.81	250	577.24
7	16.16	100	230.90	275	643.03
8	18.47	110	253.98	300	692.69
9	20.78	120	277.07	325	750.41
10	23.09	125	288.62	350	808.13
15	34.63	130	300.16	375	865.89
20	46.18	140	323.25	400	922.58
25	57.72	150	346.34	500	1154.48
30	69.27	160	369.43	1,000	2308.00

Properties of Saturated Steam

This table is abstracted by permission from Properties of Steam and Ammonia by Prof. G. A. Goodenough (John Wiley & Sons), Inc.

Absolute Pressure, Lb. per Sq. In.	Temperature, Deg. Fahr.	Volume, Cu. Ft. per Lb.	Weight, Lb. per Cu. Ft.	Heat Content in B.t.u.		Latent Heat in B.t.u.		Entropy		
				of Liquid	of Vapor	of Vaporization	Internal	of Liquid	of Vaporization	of Vapor
p	t	v_{fg}	$\frac{1}{v_{fg}}$	h_f	h_g	h_{fg}	u	s	s_{fg}	s_g
1	101.76	333.3	0.00300	69.76	1105.4	1035.6	973.9	0.1327	1.8448	1.9775
2	126.10	173.6	0.00576	94.02	1116.2	1022.2	957.9	0.1750	1.7452	1.9203
3	141.49	118.7	0.00843	109.38	1122.9	1013.5	947.6	0.2009	1.6862	1.8871
4	152.99	90.6	0.01104	120.9	1127.9	1007.0	939.9	0.2199	1.6438	1.8637
5	162.25	73.5	0.01360	130.1	1131.7	1001.6	933.6	0.2348	1.6107	1.8456
6	170.07	62.0	0.01614	137.9	1135.0	997.1	928.2	0.2473	1.5835	1.8308
7	176.85	53.7	0.01864	144.7	1137.8	993.1	923.6	0.2581	1.5603	1.8184
8	182.87	47.35	0.02112	150.8	1140.3	989.5	919.4	0.2675	1.5402	1.8077
9	188.28	42.41	0.02358	156.2	1142.5	986.3	915.6	0.2759	1.5223	1.7982
10	193.21	38.43	0.02602	161.1	1144.4	983.3	912.2	0.2835	1.5062	1.7897
11	197.75	35.16	0.02844	165.7	1146.2	980.5	909.0	0.2905	1.4916	1.7821
12	201.96	32.41	0.03086	169.9	1147.9	978.0	906.0	0.2969	1.4783	1.7752
13	205.88	30.07	0.03326	173.8	1149.4	975.6	903.2	0.3028	1.4659	1.7687
14	209.56	28.06	0.03564	177.5	1150.8	973.3	900.6	0.3083	1.4545	1.7628
14.7	212.0	26.81	0.03730	180.0	1151.7	971.7	898.8	0.3120	1.4469	1.7589
16	216.3	24.76	0.04038	184.3	1153.4	969.1	895.8	0.3184	1.4337	1.7521
18	222.4	22.18	0.04508	190.5	1155.7	965.2	891.4	0.3274	1.4153	1.7427
20	228.0	20.10	0.04976	196.0	1157.7	961.7	887.3	0.3356	1.3987	1.7343
22	233.1	18.38	0.0544	201.2	1159.6	958.4	883.6	0.3430	1.3837	1.7267
24	237.8	16.95	0.0590	206.0	1161.3	955.3	880.1	0.3499	1.3698	1.7197
26	242.2	15.73	0.0636	210.4	1162.8	952.4	876.8	0.3563	1.3570	1.7133
28	246.4	14.67	0.0681	214.6	1164.3	949.7	873.7	0.3622	1.3452	1.7074
30	250.3	13.76	0.0727	218.6	1165.7	947.1	870.7	0.3679	1.3340	1.7019
32	254.0	12.95	0.0772	222.4	1166.9	944.6	867.9	0.3731	1.3236	1.6967
34	257.6	12.24	0.0818	225.9	1168.1	942.2	865.2	0.3781	1.3137	1.6918
36	260.9	11.60	0.0862	229.4	1169.2	939.9	862.7	0.3829	1.3044	1.6873
38	264.2	11.03	0.0907	232.6	1170.3	937.7	860.2	0.3874	1.2956	1.6830
40	267.2	10.51	0.0951	235.8	1171.3	935.5	857.8	0.3917	1.2871	1.6788
42	270.2	10.04	0.0996	238.8	1172.2	933.5	855.5	0.3958	1.2791	1.6749
44	273.0	9.61	0.1040	241.7	1173.2	931.5	853.3	0.3998	1.2714	1.6712
46	275.8	9.22	0.1085	244.5	1174.0	929.6	851.2	0.4036	1.2640	1.6676
48	278.4	8.86	0.1129	247.2	1174.8	927.7	849.1	0.4072	1.2570	1.6642
50	281.0	8.53	0.1173	249.8	1175.6	925.9	847.1	0.4108	1.2501	1.6609
52	283.5	8.22	0.1217	252.3	1176.4	924.1	845.1	0.4142	1.2436	1.6577
54	285.9	7.93	0.1261	254.7	1177.1	922.4	843.2	0.4174	1.2373	1.6547
56	288.2	7.67	0.1304	257.1	1177.8	920.7	841.4	0.4206	1.2311	1.6517
58	290.5	7.42	0.1348	259.5	1178.5	919.0	839.5	0.4237	1.2252	1.6489
60	292.7	7.18	0.1392	261.7	1179.1	917.4	837.8	0.4267	1.2195	1.6462
62	294.9	6.97	0.1435	263.9	1179.7	915.8	836.0	0.4296	1.2139	1.6435
64	296.9	6.76	0.1479	266.1	1180.3	914.3	834.3	0.4324	1.2085	1.6409
66	299.0	6.57	0.1522	268.2	1180.9	912.7	832.7	0.4352	1.2032	1.6384
68	301.0	6.39	0.1566	270.2	1181.5	911.2	831.1	0.4379	1.1981	1.6360
70	302.9	6.22	0.1609	272.2	1182.0	909.8	829.5	0.4405	1.1931	1.6336
72	304.8	6.05	0.1652	274.2	1182.5	908.3	827.9	0.4431	1.1883	1.6313
74	306.7	5.90	0.1695	276.1	1183.0	906.9	826.4	0.4456	1.1835	1.6291
76	308.5	5.75	0.1738	278.0	1183.5	905.5	824.9	0.4480	1.1789	1.6269
78	310.3	5.61	0.1781	279.8	1184.0	904.2	823.4	0.4504	1.1744	1.6248
80	312.0	5.48	0.1824	281.6	1184.4	902.8	821.9	0.4527	1.1700	1.6227
82	313.7	5.35	0.1868	283.4	1184.9	901.5	820.5	0.4550	1.1657	1.6207
84	315.4	5.23	0.1910	285.1	1185.3	900.2	819.1	0.4572	1.1615	1.6187
86	317.1	5.12	0.1953	286.8	1185.7	898.9	817.7	0.4594	1.1574	1.6168
88	318.7	5.01	0.1996	288.5	1186.1	897.7	816.3	0.4615	1.1534	1.6149
90	320.3	4.905	0.2039	290.1	1186.5	896.4	815.0	0.4636	1.1495	1.6131
92	321.8	4.805	0.2081	291.7	1186.9	895.2	813.7	0.4657	1.1456	1.6113
94	323.3	4.709	0.2124	293.3	1187.3	894.0	812.4	0.4677	1.1419	1.6096
96	324.8	4.617	0.2166	294.8	1187.7	892.8	811.1	0.4697	1.1381	1.6079
98	326.3	4.528	0.2209	296.4	1188.0	891.6	809.8	0.4717	1.1345	1.6062
100	327.8	4.442	0.2251	297.9	1188.4	890.5	808.6	0.4736	1.1309	1.6045
102	329.2	4.359	0.2294	299.4	1188.7	889.3	807.4	0.4755	1.1274	1.6028
104	330.7	4.279	0.2337	300.9	1189.0	888.2	806.1	0.4773	1.1239	1.6012
106	332.0	4.202	0.2380	302.3	1189.4	887.1	804.9	0.4791	1.1205	1.5996
108	333.4	4.128	0.2422	303.7	1189.7	885.9	803.8	0.4809	1.1172	1.5981
110	334.8	4.057	0.2465	305.1	1190.0	884.8	802.6	0.4827	1.1138	1.5965
112	336.1	3.988	0.2508	306.5	1190.3	883.7	801.4	0.4844	1.1106	1.5950
114	337.4	3.921	0.2550	307.9	1190.6	882.7	800.3	0.4861	1.1074	1.5935
116	338.7	3.857	0.2593	309.2	1190.8	881.6	799.2	0.4878	1.1043	1.5921
118	340.0	3.795	0.2635	310.6	1191.1	880.6	798.0	0.4895	1.1012	1.5907
120	341.3	3.735	0.2678	311.9	1191.4	879.5	796.9	0.4911	1.0982	1.5893
122	342.5	3.676	0.2720	313.2	1191.6	878.5	795.8	0.4927	1.0952	1.5879
124	343.7	3.620	0.2762	314.4	1191.9	877.5	794.8	0.4943	1.0922	1.5865
126	345.0	3.566	0.2805	315.7	1192.1	876.4	793.7	0.4958	1.0894	1.5852
128	346.2	3.513	0.2847	316.9	1192.4	875.4	792.6	0.4974	1.0865	1.5838
130	347.4	3.461	0.2889	318.2	1192.6	874.4	791.6	0.4989	1.0836	1.5825
132	348.5	3.412	0.2931	319.4	1192.9	873.5	790.5	0.5004	1.0808	1.5812
134	349.7	3.363	0.2973	320.6	1193.1	872.5	789.5	0.5019	1.0781	1.5800
136	350.8	3.316	0.3016	321.8	1193.3	871.5	788.5	0.5033	1.0754	1.5787
138	352.0	3.270	0.3058	323.0	1193.5	870.5	787.4	0.5048	1.0727	1.5775
140	353.1	3.226	0.3100	324.2	1193.7	869.6	786.4	0.5062	1.0700	1.5762
142	354.2	3.182	0.3142	325.3	1193.9	868.6	785.4	0.5076	1.0674	1.5750
144	355.3	3.140	0.3184	326.5	1194.1	867.7	784.5	0.5090	1.0648	1.5738
146	356.3	3.099	0.3227	327.6	1194.3	866.8	783.5	0.5104	1.0623	1.5727
148	357.4	3.059	0.3269	328.7	1194.5	865.8	782.5	0.5117	1.0598	1.5715
150	358.5	3.020	0.3311	329.8	1194.7	864.9	781.6	0.5131	1.0573	1.5704
152	359.5	2.982	0.3353	330.9	1194.9	864.0	780.6	0.5144	1.0548	1.5692
154	360.5	2.945	0.3396	332.0	1195.1	863.1	779.7	0.5157	1.0524	1.5681
156	361.6	2.909	0.3438	333.1	1195.3	862.3	778.7	0.5170	1.0500	1.5670
158	362.6	2.874	0.3480	334.1	1195.5	861.4	777.8	0.5183	1.0476	1.5659
160	363.6	2.839	0.3522	335.2	1195.7	860.5	776.9	0.5196	1.0453	1.5649
162	364.6	2.806	0.3564	336.2	1195.8	859.6	776.0	0.5209	1.0429	1.5638
164	365.6	2.773	0.3606	337.3	1196.0	858.7	775.1	0.5221	1.0406	1.5627
166	366.5	2.741	0.3648	338.3	1196.2	857.9	774.2	0.5233	1.0384	1.5617
168	367.5	2.710	0.3691	339.3	1196.3	857.0	773.3	0.5245	1.0361	1.5607
170	368.5	2.679	0.3733	340.3	1196.5	856.2	772.4	0.5258	1.0339	1.5597
172	369.4	2.649	0.3775	341.3	1196.6	855.3	771.5	0.5270	1.0317	1.5587
174	370.4	2.620	0.3817	342.3	1196.8	854.5	770.6	0.5281	1.0295	1.5577
176	371.3	2.591	0.3859	343.3	1196.9	853.6	769.8	0.5293	1.0274	1.5567
178	372.2	2.563	0.3901	344.3	1197.1	852.8	768.9	0.5305	1.0252	1.5557
180	373.1	2.536	0.3943	345.2	1197.2	852.0	768.0	0.5316	1.0231	1.5547
182	374.0	2.509	0.3985	346.2	1197.4	851.2	767.2	0.5328	1.0210	1.5538
184	374.9	2.483	0.4027	347.1	1197.5	850.4	766.4	0.5339	1.0189	1.5528
186	375.8	2.457	0.4069	348.1	1197.6	849.5	765.5	0.5350	1.0169	1.5519
188	376.7	2.432	0.4111	349.0	1197.8	848.7	764.7	0.5361	1.0148	1.5509
190	377.6	2.408	0.4154	350.0	1197.9	847.9	763.9	0.5372	1.0128	1.5500
192	378.5	2.383	0.4196	350.9	1198.0	847.1	763.0	0.5383	1.0108	1.5491
194	379.3	2.360	0.4238	351.8	1198.1	846.3	762.2	0.5394	1.0089	1.5482
196	380.2	2.337	0.4280	352.7	1198.2	845.6	761.4	0.5404	1.0069	1.5473
198	381.0	2.314	0.4322	353.6	1198.4	844.8	760.6	0.5415	1.0049	1.5464
200	381.9	2.292	0.4364	354.5	1198.5	844.0	759.8	0.5426	1.0030	1.5456
202	382.7	2.270	0.4406	355.4	1198.6	843.2	759.0	0.5436	1.0011	1.5447
204	383.5	2.248	0.4448	356.2	1198.7	842.5	758.2	0.5446	0.9992	1.5438
206	384.4	2.227	0.4490	357.1	1198.8	841.7	757.4	0.5457	0.9973	1.5430
208	385.2	2.206	0.4532	358.0	1198.9	840.9	756.7	0.5467	0.9954	1.5421
210	386.0	2.186	0.457	358.8	1199.0	840.2	755.9	0.5477	0.9936	1.5413
212	386.8	2.166	0.462	359.7	1199.1	839.4	755.1	0.5487	0.9918	1.5405
214	387.6	2.147	0.466	360.5	1199.2	838.7	754.3	0.5497	0.9900	1.5396
216	388.4	2.128	0.470	361.4	1199.3	837.9	753.6	0.5507	0.9881	1.5388
218	389.2	2.109	0.474	362.2	1199.4	837.2	752.8	0.5516	0.9864	1.5380
220	390.0	2.090	0.478	363.0	1199.5	836.5	752.1	0.5526	0.9846	1.5372

B. t. u. Required for Heating Air

(E. R. Pierce)

This table specifies the units of heat required to heat one cubic ft. of air at different temperatures.

External Temperature	Temperature of Air in Room									
	40°	50°	60°	70°	80°	90°	100°	110°	120°	130°
—40°	1.802	2.027	2.252	2.479	2.703	2.928	3.154	3.379	3.604	3.829
—30°	1.540	1.760	1.980	2.200	2.420	2.640	2.860	3.080	3.300	3.520
—20°	1.290	1.505	1.720	1.935	2.150	2.365	2.580	2.795	3.010	3.225
—10°	1.051	1.262	1.473	1.684	1.892	2.102	2.311	2.522	2.732	2.943
0°	0.822	1.028	1.234	1.439	1.645	1.851	2.056	2.262	2.467	2.673
10°	0.604	0.805	1.007	1.208	1.409	1.611	1.812	2.013	2.215	2.416
20°	0.393	0.590	0.787	0.984	1.181	1.378	1.575	1.771	1.968	2.165
30°	0.192	0.385	0.578	0.770	0.963	1.155	1.345	1.540	1.733	1.925
40°	0.000	0.188	0.376	0.564	0.752	0.940	1.128	1.316	1.504	1.692
50°	0.000	0.000	0.184	0.367	0.551	0.735	0.918	1.102	1.286	1.470
60°	0.000	0.000	0.000	0.179	0.359	0.538	0.718	0.897	1.077	1.256
70°	0.000	0.000	0.000	0.000	0.175	0.350	0.525	0.700	0.875	1.049

Velocity and Force of Wind in Pounds per Square Inch

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Miles per Hour	Feet per Second	Force per Sq. Ft. Pounds	Common Appellation of the Force of Wind
1	1.47	0.005	Hardly perceptible
2	2.93	0.020	Just perceptible
3	4.4	0.044	
4	5.87	0.079	
5	7.33	0.123	Gentle, pleasant wind
6	8.8	0.177	
7	10.25	0.241	
8	11.75	0.315	
9	13.2	0.400	
10	14.67	0.492	
12	17.6	0.708	Pleasant, brisk gale
14	20.5	0.964	
15	22.00	1.107	
16	23.45	1.25	
18	26.4	1.55	
20	29.34	1.968	Very brisk
25	36.67	3.075	
30	44.00	4.429	
35	51.34	6.027	High wind
40	58.68	7.873	
45	66.01	9.963	
50	73.35	12.30	Very high storm
55	80.7	14.9	
60	88.00	17.71	
65	95.3	20.85	Great storm
70	102.5	24.1	
75	110.00	27.7	
80	117.36	31.49	Hurricane
100	146.67	49.2	Immense hurricane

Infiltration

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Type of Opening	Cubic Feet per Hour per Lin. Ft. Crack	Specific Heat Air	Factor
Double Hung Wood Sash	50	0.018	0.9
Same with Metal Weather Strip	25	0.018	0.45
Stationary Wood Sash	25	0.018	0.45
Double Hung Steel Sash	100	0.018	1.8
Same with Metal Weather Strip	50	0.018	0.9
Rolled Section Steel Window	100*	0.018	1.8
Residential Casement Windows, Wood	100	0.018	1.8
Same with Metal Weather Strip	50	0.018	0.9
Residential Casements, Steel	50	0.018	0.9
French Doors	100	0.018	1.8
Same with Metal Weather Strip	50	0.018	0.9
Outside Doors, Residences	100	0.018	1.8
Same with Metal Weather Strip	50	0.018	0.9
Same with Storm Doors	50	0.018	0.9
Same with Inner Vestibule Doors	50	0.018	0.9
Outside Doors, Stores, etc.	200	0.018	3.6

*Per foot of crack of ventilating sash.

Storm windows, not a permanent part of the building, reduce infiltration approximately 50 per cent.

Fireplaces without dampers increase infiltration.

The factor in the last column is the number of B.t.u.s. per lineal foot of crack per hour per degree difference in temperature.

With three or more exposures and exceptionally good construction, an arbitrary reduction not to exceed 25 per cent of the total can be made in the infiltration loss.

Exposure Factors

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City	Base Temp.	Points of Compass							
		N	NE	E	SE	S	SW	W	NW
Albany, N. Y.	+ 5°	1.10	1.10	1.05	1.0	1.0	1.0	1.10	1.10
Baltimore, Md.	+30°	1.40	1.40	1.30	1.0	1.30	1.30	1.40	1.40
Birmingham, Ala.	+30°	1.15	1.15	1.0	1.0	1.0	1.05	1.15	1.15
Boston, Mass.	+15°	1.30	1.10	1.0	1.0	1.0	1.30	1.30	1.30
Buffalo, N. Y.	0°	1.0	1.0	1.0	1.0	1.25	1.40	1.40	1.40
Chicago, Ill.	+10°	1.25	1.0	1.0	1.0	1.15	1.35	1.35	1.35
Cincinnati, Ohio	+15°	1.10	1.0	1.0	1.0	1.35	1.35	1.35	1.20
Cleveland, Ohio	+ 5°	1.15	1.08	1.08	1.0	1.08	1.15	1.15	1.15
Denver, Colo.*	+20°	1.30	1.30	1.20	1.25	1.25	1.25	1.0	1.30
Detroit, Mich.	0°	1.10	1.0	1.0	1.0	1.10	1.10	1.10	1.10
Eastport, Me.	+10°	1.45	1.20	1.20	1.0	1.0	1.45	1.45	1.45
Green Bay, Wis.	− 5°	1.0	1.0	1.0	1.0	1.05	1.10	1.10	1.10
Houston, Texas	+40°	1.90	1.30	1.20	1.0	1.0	1.0	1.90	1.90
Kansas City, Mo.	+15°	1.45	1.35	1.0	1.0	1.10	1.10	1.45	1.45
Los Angeles, Cal.	+50°	1.50	1.50	1.50	1.0	1.0	1.0	1.50	1.50
Louisville, Ky.	+20°	1.30	1.30	1.0	1.05	1.05	1.45	1.45	1.45
Madison, Wis.	+ 5°	1.25	1.15	1.10	1.0	1.10	1.25	1.25	1.25
Memphis, Tenn.	+30°	1.40	1.20	1.10	1.0	1.30	1.30	1.40	1.40
Milwaukee, Wis.	+10°	1.25	1.0	1.0	1.0	1.15	1.35	1.35	1.35
New Orleans, La.	+45°	1.50	1.40	1.25	1.0	1.0	1.0	1.50	1.50
New York, N. Y.	+10°	1.50	1.25	1.0	1.0	1.0	1.33	1.50	1.50
Norfolk, Va.	+30°	1.50	1.30	1.20	1.0	1.0	1.20	1.50	1.50
Philadelphia, Pa.	+15°	1.20	1.10	1.10	1.0	1.0	1.0	1.20	1.20
Pittsburgh, Pa.	+15°	1.30	1.0	1.0	1.0	1.30	1.35	1.35	1.35
Portland, Ore.	+25°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Providence, R. I.	+15°	1.50	1.25	1.0	1.0	1.10	1.25	1.50	1.50
Richmond, Va.	+30°	1.35	1.25	1.25	1.0	1.30	1.30	1.35	1.35
Rochester, N. Y.	+10°	1.05	1.0	1.0	1.0	1.25	1.30	1.30	1.30
St. Louis, Mo.	+20°	1.30	1.20	1.0	1.20	1.20	1.20	1.30	1.30
St. Paul, Minn.	− 5°	1.20	1.0	1.0	1.0	1.0	1.10	1.20	1.20
Salt Lake City, Utah	+25°	1.10	1.0	1.10	1.10	1.10	1.0	1.10	1.10
San Antonio, Texas	+45°	1.70	1.70	1.40	1.0	1.0	1.0	1.70	1.70
San Francisco, Cal.	+45°	1.20	1.20	1.20	1.0	1.0	1.0	1.0	1.15
Seattle, Wash.	+25°	1.0	1.0	1.0	1.25	1.25	1.25	1.0	1.0
Syracuse, N. Y.	0°	1.10	1.0	1.0	1.0	1.05	1.10	1.10	1.10
Washington, D. C.	+20°	1.20	1.0	1.0	1.0	1.0	1.0	1.20	1.20
Wichita, Kan.	+10°	1.20	1.20	1.10	1.0	1.0	1.0	1.0	1.20

*DENVER—See Note in next column.

Conversion Factors

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Base Temperature	Room Temperature								
	80	75	70	65	60	55	50	45	40
− 5°	1.219	1.104	1	0.903	0.811	0.725	0.646	0.572	0.498
0°	1.228	1.111	1	0.896	0.801	0.712	0.628	0.549	0.472
+ 5°	1.239	1.119	1	0.892	0.791	0.698	0.608	0.525	0.447
+10°	1.253	1.223	1	0.886	0.780	0.680	0.586	0.498	0.415
+15°	1.269	1.13	1	0.878	0.765	0.659	0.569	0.465	0.375
+20°	1.289	1.14	1	0.870	0.748	0.634	0.528	0.427	0.332
+25°	1.312	1.151	1	0.859	0.728	0.604	0.489	0.380	0.277
+30°	1.343	1.166	1	0.845	0.702	0.566	0.44	0.312	0.207
+35°	1.380	1.183	1	0.829	0.669	0.519	.....	.....	.....
+40°	1.433	1.21	1	0.806	0.627	0.453	.....	.....	.....
+45°	1.504	1.243	1	0.773	0.561	0.363	.....	.....	.....

Formula

$$\text{Factor} = \frac{Tr - Tb}{70 - Tb} \times \frac{Ts - 70}{Ts - Tr}$$

Tr = Room Temperature
Tb = Base Temperature
Ts = 215 deg.

To calculate amount of radiation required for other room temperatures than 70 deg., compute the amount for 70 deg. and multiply by the factor shown corresponding to room temperature desired and ***proper base temperature.***

Combined Temperature and Exposure Factors

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City	Base Temp.	Temp. Factor	Points of Compass							
			N	NE	E	SE	S	SW	W	NW
Albany, N. Y.	+ 5°	0.93	1.02	1.02	0.97	0.93	0.93	0.93	1.02	1.02
Baltimore, Md.	+30°	0.57	0.80	0.80	0.74	0.57	0.74	0.74	0.80	0.80
Birmingham, Ala.	+30°	0.57	0.66	0.66	0.57	0.57	0.57	0.60	0.66	0.66
Boston, Mass.	+15°	0.79	1.02	0.86	0.79	0.79	0.79	1.02	1.02	1.02
Buffalo, N. Y.	0°	1.00	1.00	1.00	1.00	1.00	1.25	1.40	1.40	1.40
Chicago, Ill.	+10°	0.86	1.07	0.86	0.86	0.86	0.99	1.16	1.16	1.16
Cincinnati, Ohio	+15°	0.79	0.86	0.79	0.79	0.79	1.06	1.06	1.06	0.94
Cleveland, Ohio	+ 5°	0.93	1.07	1.00	1.00	0.93	1.00	1.07	1.07	1.07
Denver, Colo.*	+20°	0.80	1.04	1.04	0.96	1.00	1.00	1.00	0.80	1.04
Detroit, Mich.	0°	1.00	1.10	1.00	1.00	1.00	1.10	1.10	1.10	1.10
Eastport, Me.	+10°	0.86	1.24	1.03	1.03	0.86	0.86	1.24	1.24	1.24
Green Bay, Wis.	− 5°	1.07	1.07	1.07	1.07	1.07	1.12	1.18	1.18	1.18
Houston, Texas	+40°	0.43	0.81	0.56	0.51	0.43	0.43	0.43	0.81	0.81
Kansas City, Mo.	+15°	0.79	1.14	1.06	0.79	0.79	0.86	0.86	1.14	1.14
Los Angeles, Cal.	+50°	0.29	0.43	0.43	0.43	0.29	0.29	0.29	0.43	0.43
Louisville, Ky.	+20°	0.71	0.93	0.93	0.71	0.75	0.75	1.04	1.04	1.04
Madison, Wis.	+ 5°	0.93	1.16	1.07	1.02	0.93	1.02	1.16	1.16	1.16
Memphis, Tenn.	+30°	0.57	0.80	0.68	0.63	0.57	0.74	0.74	0.80	0.80
Milwaukee, Wis.	+10°	0.86	1.07	0.86	0.86	0.86	0.99	1.16	1.16	1.16
New Orleans, La.	+45°	0.36	0.54	0.50	0.45	0.36	0.36	0.36	0.54	0.54
New York, N. Y.	+10°	0.86	1.29	1.07	0.86	0.86	0.86	1.14	1.29	1.29
Norfolk, Va.	+30°	0.57	0.86	0.74	0.68	0.57	0.57	0.68	0.86	0.86
Philadelphia, Pa.	+15°	0.79	0.94	0.86	0.86	0.79	0.79	0.79	0.94	0.94
Pittsburgh, Pa.	+15°	0.79	1.02	0.79	0.79	0.79	1.02	1.06	1.06	1.06
Portland, Ore.	+25°	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
Providence, R. I.	+15°	0.79	1.18	0.98	0.79	0.79	0.86	0.98	1.18	1.18
Richmond, Va.	+30°	0.57	0.77	0.71	0.71	0.57	0.74	0.74	0.77	0.77
Rochester, N. Y.	+10°	0.86	0.90	0.86	0.86	0.86	1.07	1.11	1.11	1.11
St. Louis, Mo.	+20°	0.71	0.93	0.86	0.71	0.86	0.86	0.86	0.93	0.93
St. Paul, Minn.	− 5°	1.07	1.28	1.07	1.07	1.07	1.07	1.18	1.28	1.28
Salt Lake City, Utah	+25°	0.64	0.71	0.64	0.71	0.71	0.71	0.64	0.71	0.71
San Antonio, Texas	+45°	0.36	0.61	0.61	0.50	0.36	0.36	0.36	0.61	0.61
San Francisco, Cal.	+45°	0.36	0.43	0.43	0.43	0.36	0.36	0.36	0.36	0.41
Seattle, Wash.	+25°	0.64	0.64	0.64	0.64	0.80	0.80	0.80	0.64	0.64
Syracuse, N. Y.	0°	1.00	1.10	1.00	1.00	1.00	1.05	1.10	1.10	1.10
Washington, D. C.	+20°	0.71	0.86	0.71	0.71	0.71	0.71	0.71	0.86	0.86
Wichita, Kan.	+10°	0.86	1.03	1.03	0.94	0.86	0.86	0.86	0.86	1.03

*Denver base temperature and exposure factors based on actual Weather Bureau records, but due to rapid changes and high altitude both temperature factors and combined temperature and exposure factors have been corrected to care for these conditions.

Velocity of Winds in United States

(E. R. Pierce)

Average hourly velocity of the wind at selected stations of the United States Weather Bureau, also the highest velocity ever reported for a period of five minutes.

Stations	Average Hourly Velocity Miles	Highest Ever Reported Miles	Stations	Average Hourly Velocity Miles	Highest Ever Reported Miles
Abilene, Texas	11	66	Leavenw'th, Kan.†	7	66
Albany, N. Y.	6	70	Louisville, Ky.	7	60
Alpena, Mich.	9	72	Lynchburg, Va.	4	50
Atlanta, Ga.	9	66	Memphis, Tenn.	6	75
Bismarck, N. D.	8	74	Montgomery, Ala.	5	54
Boise, Idaho	4	55	Nashville, Tenn.	6	75
Boston, Mass.	11	72	New Orleans, La.	7	66
Buffalo, N. Y.	11	90	New York, N. Y.	9	96
Charlotte, N. C.	5	55	North Platte, Neb.	9	96
Chattanooga, Tenn.	6	60	Omaha, Neb.	8	66
Chicago, Ill.	9	84	Palestine, Texas	8	60
Cincinnati, Ohio	7	59	Philadelphia, Pa.	10	75
Cleveland, Ohio	9	73	Pittsburgh, Pa.	6	69
Custer, Mont.†	7	72	Portland, Me.	5	61
Denver, Colo.	7	75	Red Bluff, Cal.	7	60
Detroit, Mich.	9	76	Rochester, N. Y.	11	78
Dodge City, Kan.	11	75	St. Louis, Mo.	11	80
Dubuque, Iowa	5	60	St. Paul, Minn.	7	102
Duluth, Minn.	7	78	St. Vincent, Minn†	9	72
Eastport, Me.	9	78	SaltLakeCity, Utah	5	66
El Paso, Texas	5	78	San Diego, Cal.	6	43
Fort Smith, Ark.	5	66	San Francisco, Cal.	9	60
Galveston, Texas	10	*84	Santa Fe, N. M.	6	53
Havre, Mont.	11	76	Savannah, Ga.	7	88
Helena, Mont.	6	70	Spokane, Wash.	4	52
Huron, S. D.	10	69	Toledo, Ohio	9	72
Jacksonville, Fla.	6	70	Vicksburg, Miss.	6	62
Keokuk, Iowa	8	60	Washington, D. C.	5	66
Knoxville, Tenn.	5	84	Wilmington, N. C.	7	68

*Anemometer blew away at a velocity of 84 miles per hour, September, 1900
†Stations discontinued.

Factors for Windage

(Reprinted by permission from Kent's Mechanical Engineers' Handbook, Tenth Edition, published by John Wiley & Sons, Inc.)

Surface Temperature, Deg. F.	Wind Velocity, Feet per Minute					
	88	220	440	660	880	1100
120	1.6	2.1	2.7	3.2	3.6	3.9
170	1.7	2.3	3.0	3.6	4.0	4.4
270	1.6	2.2	2.8	3.4	3.7	4.1
370	1.5	2.0	2.6	3.1	3.4	3.7
470	1.5	1.9	2.4	2.8	3.0	3.3
570	1.4	1.7	2.1	2.4	2.7	2.9
670	1.3	1.5	1.8	2.1	2.3	2.5

Inside Temperatures Usually Specified

From A. S. H. V. E. Guide, 1932

Type of Building	Deg. Fahr.
Schools—	
Class Rooms	68
Assembly Rooms	66–68
Gymnasiums	55–65
Toilets and Baths	70
Wardrobe and Locker Rooms	65–68
Kitchens	66
Dining and Lunch Rooms	65–68
Playrooms	60–65
Natatoriums	75
Theaters—	
Seating Space	68–72
Lounge Rooms	68
Toilets	68
Hospitals—	
Private Rooms	70
Private Rooms (surgical)	70–80
Operating Rooms	70–95
Wards	68
Kitchens and Laundries	66
Toilets	68
Bathrooms	70–80
Hotels—	
Bedrooms and Baths	70
Dining Rooms	70
Kitchens and Laundries	66
Ball Rooms	65–68
Toilets and Service Rooms	68
Homes—	
Where 68 F is generally the desirable standard of temperature a guarantee of 70 F is customarily exacted.	
Stores	65–68
Public Buildings	68–70
Warm Air Baths	120
Steam Baths	110
Factories and Machine Shops	60–65
Foundries and Boiler Shops	50–60
Paint Shops	80

Desirable Indoor Temperatures in Summer Corresponding to Outside Temperatures

From A. S. H. V. E. Guide, 1932

Degrees Outside	Degrees Inside		
Dry Bulb	Dry Bulb	Wet Bulb	Effective Temperature
95	80.0	65.2	73.4
90	78.0	64.5	72.2
85	76.5	64.0	71.1
80	75.0	63.5	70.2
75	73.5	63.0	69.3
70	72.0	62.5	68.2

Degree-Days for Cities in the United States and Canada

American Gas Association

Col. A	Col. B	Col. C
State	City	Degree-Days
Ala.	Mobile	1,439
	Birmingham	2,527
Ariz.	Phoenix	1,446
	Flagstaff	10,913
Ark.	Hot Springs	2,665
	Little Rock	2,861
Cal.	San Francisco	3,450
	Los Angeles	1,517
Colo.	Denver	5,880
	Grand Junction	5,570
Conn.	New Haven	6,039
D. C.	Washington	4,562
Fla.	Jacksonville	1,080

Degree-Days for Cities in the United States and Canada—Continued

American Gas Association

Col. A	Col. B	Col. C
State	City	Degree-Days
Ga.	Atlanta	2,880
	Savannah	1,517
Idaho	Lewiston	4,924
	Pocatello	6,459
Ill.	Chicago	6,300
	Springfield	5,495
Ind.	Indianapolis	5,331
	Evansville	3,355
Iowa	Dubuque	6,744
	Des Moines	6,464
Kans.	Topeka	5,282
	Dodge City	5,035
Ky.	Louisville	4,366
La.	New Orleans	1,044
	Shreveport	2,097
Me.	Eastport	8,676
	Portland	7,267
Md.	Baltimore	4,591
Mass.	Boston	6,055
Mich.	Alpena	8,319
	Detroit	6,202
	Marquette	8,866
Minn.	Duluth	9,650
	Minneapolis	7,953
Miss.	Jackson	1,920
Mo.	St. Joseph	5,289
	St. Louis	4,583
	Springfield	4,650
Mont.	Billings	6,983
	Havre	8,608
Nebr.	Lincoln	6,231
	North Platte	6,479
Nev.	Tonapah	6,069
	Winnemucca	6,266
N. H.	Concord	7,335
N. J.	Atlantic City	5,250
N. Y.	Albany	6,542
	Buffalo	6,750
	New York	5,348
N. M.	Santa Fe	6,064
N. C.	Raleigh	3,287
	Wilmington	2,493
N. D.	Bismark	8,498
	Grand Forks	9,724
Ohio	Cleveland	6,096
	Columbus	5,426
Okla.	Oklahoma City	3,827
Ore.	Portland	4,449
	Salem	4,629
Pa.	Philadelphia	4,950
	Pittsburgh	5,327
R. I.	Providence	6,111
S. C.	Charleston	1,770
	Columbus	2,600
S. D.	Pierre	7,213
	Sioux Falls	7,683
Tenn.	Knoxville	3,517
	Nashville	3,550
Texas	El Paso	1,912
	Galveston	1,050
	San Antonio	1,362
Utah	Salt Lake City	5,358
	Logan	6,750
Vt.	Burlington	8,123
Va.	Richmond	3,789
	Lynchburg	3,849
	Danville	3,316
	Norfolk	3,349
Wash.	Seattle	5,156
	Spokane	6,085
W. Va.	Elkins	5,813
	Parkersburg	4,884
Wis.	Green Bay	8,201
	La Crosse	7,309
	Milwaukee	7,366
Wyo.	Sheridan	8,113
	Cheyenne	7,360

Col. A	Col. B	Col. C
Province	City	Degree-Days
B. C.	Victoria	5,777
	Vancouver	5,976
	Kamloops	6,724
Alb.	Medicine Hat	8,152
Sask.	Qu Appelle	11,261
Man.	Winnipeg	11,166
Ont.	Port Arthur	10,803
	Toronto	7,732
Que.	Montreal	8,705
	Quebec	8,628
N. B.	Fredericton	9,099
N. S.	Yarmouth	7,694
P. E. I.	Charlottetown	8,485

Direct Column Radiation, Data and Dimensions

I. Heating Surface of Radiators, Square Feet
Standard Cast-Iron Radiation, Column Type for Steam and Water
Reprinted by permission from Heating, Ventilation and Air Conditioning, by Harding and Willard, published by John Wiley & Sons, Inc.

Number of Sections	Length, 2½-In. per Section*	One-Column, Square Feet					Two-Column, Square Feet					Three-Column Square Feet					Four-Column, Square Feet					Window, Sq. Feet	
		Inches					Inches†					Inches					Inches					Inches	
		38	32	26	23	20	38	32	26	23	20	38	32	26	22	18	38	32	26	22	18	28	24
1	2½	3	2½	2	1⅜	1½	4	3⅛	2⅜	2⅛	2	5	4½	3¾	3	2¼	8	6½	5	4	3	4¾	4
2	5	6	5	4	3⅛	3	8	6⅜	5⅛	4⅜	4	10	9	7½	6	4½	16	13	10	8	6	9½	8
3	7½	9	7½	6	5	4½	12	10	8	7	6	15	13½	11¼	9	6¾	24	19½	15	12	9	14¼	12
4	10	12	10	8	6⅜	6	16	13⅛	10⅜	9⅛	8	20	18	15	12	9	32	26	20	16	12	19	16
5	12½	15	12½	10	8⅛	7½	20	16⅜	13⅛	11⅜	10	25	22½	18¾	15	11¼	40	32½	25	20	15	23¾	20
6	15	18	15	12	10	9	24	20	16	14	12	30	27	22½	18	13½	48	39	30	24	18	28½	24
7	17½	21	17½	14	11⅜	10½	28	23⅛	18⅜	16⅛	14	35	31½	26¼	21	15¾	56	45½	35	28	21	33¼	28
8	20	24	20	16	13⅛	12	32	26⅜	21⅛	18⅜	16	40	36	30	24	18	64	52	40	32	24	38	32
9	22½	27	22½	18	15	13½	36	30	24	21	18	45	40½	33¾	27	20¼	72	58½	45	36	27	42¾	36
10	25	30	25	20	16⅜	15	40	33⅛	26⅜	23⅛	20	50	45	37½	30	22½	80	65	50	40	30	47½	40
11	27½	33	27½	22	18⅛	16½	44	36⅜	29⅛	25⅜	22	55	49½	41¼	33	24¾	88	71½	55	44	33	52¼	44
12	30	36	30	24	20	18	48	40	32	28	24	60	54	45	36	27	96	78	60	48	36	57	48
13	32½	39	32½	26	21⅜	19½	52	43⅛	34⅜	30⅛	26	65	58½	48¾	39	29¼	104	84½	65	52	39	61¾	52
14	35	42	35	28	23⅛	21	56	46⅜	37⅛	32⅜	28	70	63	52½	42	31½	112	91	70	56	42	66½	56
15	37½	45	37½	30	25	22½	60	50	40	35	30	75	67½	56¼	45	33¾	120	97½	75	60	45	71¼	60
16	40	48	40	32	26⅜	24	64	53⅛	42⅜	37⅛	32	80	72	60	48	36	128	104	80	64	48	76	64
17	42½	51	42½	34	28⅛	25½	68	56⅜	45⅛	39⅜	34	85	76½	63¾	51	38¼	136	110½	85	68	51	80¾	68
18	45	54	45	36	30	27	72	60	48	42	36	90	81	67½	54	40½	144	117	90	72	54	85½	72
19	47½	57	47½	38	31⅜	28½	76	63⅛	50⅜	44⅛	38	95	85½	71¼	57	42¾	152	123½	95	76	57	90¼	76
20	50	60	50	40	33⅛	30	80	66⅜	53⅛	46⅜	40	100	90	75	60	45	160	130	100	80	60	95	80
21	52½	63	52½	42	35	31½	84	70	56	49	42	105	94½	78¾	63	47¼	168	136½	105	84	63	.....	....
22	55	66	55	44	36⅜	33	88	73⅛	58⅜	51⅛	44	110	99	82½	66	49½	176	143	110	88	66	.....	....
23	57½	69	57½	46	38⅛	34½	92	76⅜	61⅛	53⅜	46	115	103½	86½	69	51¾	184	149½	115	92	69	.....	....
24	60	72	60	48	40	36	96	80	64	56	48	120	108	90	72	54	192	156	120	96	72	.....	....
25	62½	75	62½	50	41⅜	37½	100	83⅛	66⅜	58½	50	125	112½	93¾	75	56¼	200	162½	125	100	75	.....	....
26	65	78	65	52	43⅛	39	104	86⅜	69⅛	60⅜	52	130	117	97½	78	58½	208	169	130	104	78	.....	....

*Add ½ in. to length for each bushing.
†A 15-in. height is made for steam only in the 2-column type.

Capacities of One-Cylinder Double-Acting or Two-Cylinder Single-Acting Vacuum Pumps When Length of Stroke (l) = Diameter (d) and for Basic Conditions as Noted

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Diameter of Cylinder Inches d	When $l = d$		Rated Capacity of Pump When $l = d$		Diameter of Cylinder Inches d	When $l = d$		Rated Capacity of Pump When $l = d$	
	Piston Speed Feet per Minute s	Revolutions per Minute n	Equivalent Direct Radiation Square Feet	Condensation Pounds per Hour		Piston Speed Feet per Minute s	Revolutions per Minute n	Equivalent Direct Radiation Square Feet	Condensation Pounds per Hour
3	35	140	1,700	510	9	60	80	26,600	7,980
4	40	120	3,500	1,050	10	63	76	34,500	10,350
5	45	108	5,916	1,775	12	69	69	54,333	16,300
6	50	100	9,633	2,890	14	75	64	80,000	24,000
7	53	90	14,170	4,250	16	80	60	111,700	33,500
8	57	86	19,733	5,920	18	85	57	150,000	45,000

Proximate Analyses and Heat Values of Anthracite Coals

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Locality	Fixed Carbon	Volatile	Moisture	Ash	Sulphur	B.t.u. per Pounds of Dry Coal
Anthracite:						
Pennsylvania	78.60	....	....	14.80	0.40	.....
Buckwheat	81.32	3.84	3.88	10.96	0.67	12,200
Wilkesbarre	76.94	6.42	1.34	15.30	....	11,801
Scranton	79.23	3.73	3.33	13.70	....	12,149
Scranton	84.46	5.37	0.97	9.20	....	12,294
Cross Creek	89.19	1.96	3.62	5.23	....	13,723
Lehigh Valley	75.20	7.36	1.44	16.00	....	12,423
Lykens Valley	76.94	6.21	....	....	....	15,300
Lykens Valley	81.00	5.00	....	....	....	15,300
Wharton	86.40	3.08	3.71	6.22	0.58	15,000
Buck Mt.	82.66	3.95	3.04	9.88	0.46	15,070
Beaver Meadow	88.94	2.38	1.50	7.11	0.01	.....
Lackawanna	87.74	3.91	2.12	6.35	0.12	.....
Rhode Island	85.00	....	....	7.00	0.90	.....
Arkansas	74.49	14.73	1.52	9.26	....	13,217
Semi-anthracite:						
Pennsylvania, Loyalsock	83.34	8.10	1.30	6.23	1.03	15,400
Bernice	82.52	3.56	0.96	3.27	0.24	15,050
Bernice	89.39	8.56	0.97	9.34	1.04	15,475
Wilkesbarre	88.90	7.68	....	3.49	....	14,199
Lycoming Creek	71.53	13.84	0.67	13.96	0.03	.....
Virginia, Natural Coke	75.08	12.44	1.12	11.38	0.47	.....
Arkansas	74.06	14.93	1.35	9.66	....	.....
Indian Territory	73.21	13.65	5.11	8.03	1.18	13,662
Maryland, Easby	83.60	16.40	....	....	....	11,207

Average Wet-Bulb Temperature for Month of July

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City	Average Wet-Bulb Temperature Degrees F.	Wet-Bulb Temperature to be Used as a Basis for Refrigeration Calculation Degrees F.	City	Average Wet-Bulb Temperature Degrees F.	Wet-Bulb Temperature to be Used as a Basis for Refrigeration Calculation Degrees F.
Atlanta	70	80	New York	66.4	76
Boston	65.2	75	Nashville	70.1	80
Buffalo	64.4	74	Omaha	66.7	77
Chicago	64.9	75	Oklahoma	69.7	80
Cleveland	65.1	75	Portland, Me.	61.5	72
Jacksonville	74.1	84	Portland, Ore.	58.5	69
Los Angeles	61.2	71	Pittsburgh	65.7	76
New Orleans	74.8	85	St. Louis	69.3	79

Psychrometric Chart

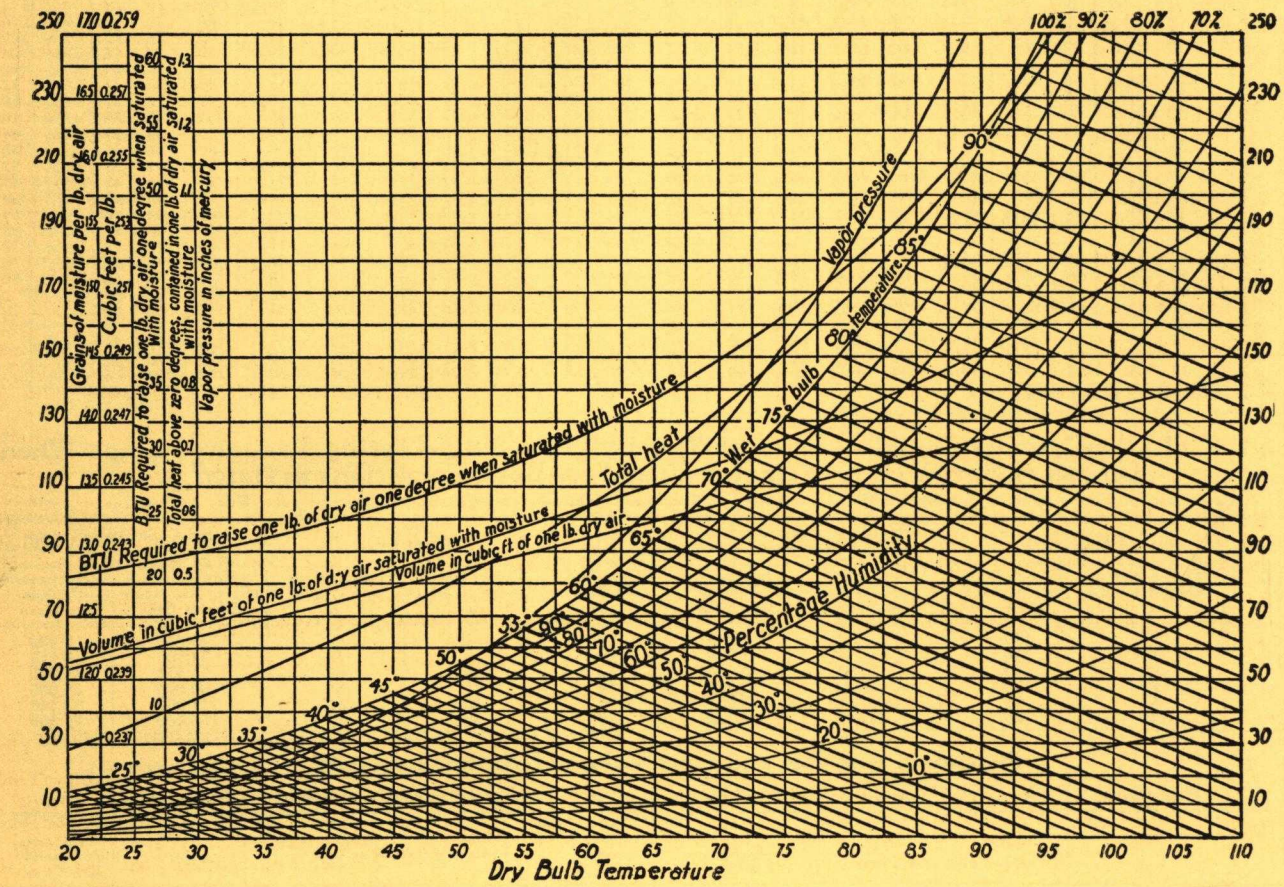
(Reproduced Courtesey Carrier Engineering Corporation)

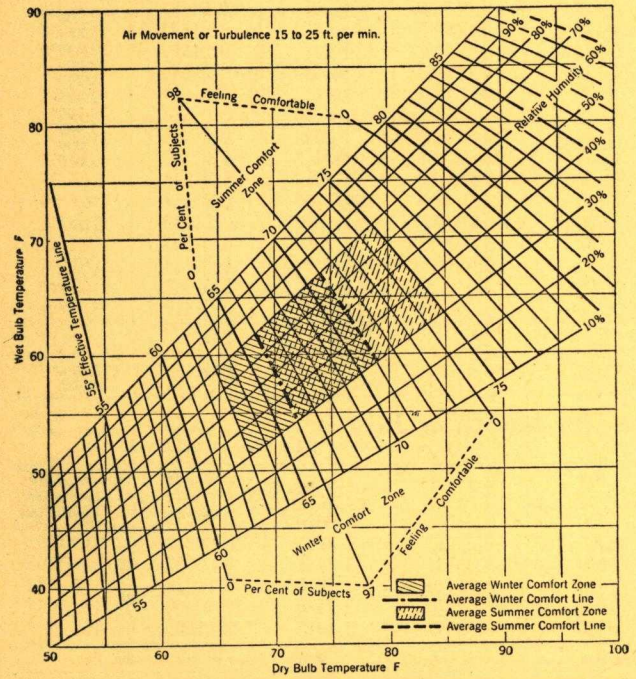
Psychrometric chart is most useful in all problems in air conditioning, drying, and in the determination of the moisture content in air. A formula has been derived which will permit the approximate calculation of the vapor pressure from the wet bulb temperature observation. The formula for expressing this relationship is:

$$e = e' - (P - e')(t - t')\ 2800\text{-}1.3t'$$

where

e = partial pressure of the moisture in the air, which also equals vapor pressure corresponding to the dew-point.
e' = the vapor pressure corresponding to saturation at wet bulb temperature t'
P = The barometric pressure.
t = dry bulb temperature in deg. fahr.
t' = wet bulb temperature in deg. fahr.





Comfort or Effective Temperature Chart for Air Velocities of 15 to 25 fpm (Still Air)

From report of A.S.H.V.E. Technical Advisory Committee on Re-Study of Comfort Chart and Comfort Line.

Note: Both summer and winter comfort zones apply to inhabitants of the United States only. Application of winter zone is further limited to rooms heated by central station systems of the convection type. The zone does not apply to rooms heated by radiant methods. Application of summer comfort zone is limited to homes, offices and the like, where the occupants become fully adapted to the artificial air conditions. The zone does not apply to theaters, department stores, and the like where the exposure is less than 3 hours.

Velocities of Dry Air (at Various Temperatures) Corresponding to Various Velocity Pressures in Ounces per Square Inch

Reprinted by permission from Fan Engineering, published by The Buffalo Forge Company.

Pressure		Temperature, Deg. Fahr.									
Ounces	Inches	50°	60°	70°	80°	100°	150°	200°	300°	500°	550°
0.1	0.1734	1635	1653	1667	1683	1714	1788	1860	1996	2244	2410
0.2	0.3468	2313	2338	2358	2380	2424	2530	2632	2824	3174	3405
0.3	0.5202	2833	2864	2888	2915	2969	3098	3223	3458	3887	4175
0.4	0.6936	3272	3307	3335	3367	3428	3578	3722	3994	4489	4850
0.5	0.8670	3658	3698	3729	3765	3833	4000	4162	4466	5019	5395
0.6	1.0400	4007	4051	4085	4124	4199	4382	4559	4892	5498	5900
0.7	1.2140	4329	4375	4412	4454	4535	4733	4924	5283	5938	6380
0.8	1.3870	4626	4677	4716	4761	4848	5059	5263	5647	6347	6820
0.9	1.5605	4907	4960	5002	5050	5142	5366	5582	5990	6733	7250
1.0	1.7340	5172	5229	5273	5323	5420	5656	5884	6314	7098	7625
1.1	1.9073	5426	5485	5531	5584	5685	5933	6172	6623	7444	8000
1.2	2.0808	5664	5725	5774	5828	5935	6194	6443	6914	7772	8350
1.3	2.2540	5896	5960	6011	6068	6179	6448	6708	7198	8090	8700
1.4	2.4275	6120	6186	6238	6297	6412	6692	6962	7470	8396	9020
1.5	2.6010	6335	6404	6457	6520	6638	6928	7207	7733	8692	9345
1.6	2.7742	6543	6614	6670	6734	6856	7155	7444	7987	8977	9650
1.8	3.1210	6942	7017	7076	7143	7274	7591	7897	8473	9524	10220
2.0	3.4680	7315	7395	7457	7528	7665	8000	8322	8930	10037	10780
2.2	3.8145	7672	7755	7820	7894	8038	8462	8727	9364	10525	11300
2.4	4.1615	8012	8099	8168	8245	8396	8762	9115	9781	10995	11800
2.6	4.5080	8338	8429	8500	8581	8737	9118	9486	10179	11440	12280
2.8	4.8550	8654	8748	8822	8906	9068	9464	9845	10564	11873	12750
3.0	5.2020	8960	9057	9134	9220	9388	9798	10193	10938	12293	13200

Velocities of Dry Air (at Various Temperatures) Corresponding to Various Velocity Pressures in Inches of Water

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Pressure		Temperature, Deg. Fahr.									
Inches	Ounces	50°	60°	70°	80°	100°	150°	200°	300°	500°	550°
0.1	0.0577	1242	1255	1266	1278	1300	1358	1413	1516	1704	1830
0.2	0.1154	1757	1776	1791	1808	1841	1921	2000	2145	2411	2590
0.25	0.1443	1965	1986	2003	2022	2059	2149	2235	2399	2696	2895
0.3	0.1730	2151	2175	2193	2214	2254	2352	2447	2626	2952	3175
0.4	0.2308	2485	2512	2533	2557	2603	2717	2827	3033	3409	3660
0.5	0.2884	2778	2808	2832	2859	2911	3038	3160	3391	3812	4095
0.6	0.3460	3043	3076	3102	3131	3188	3327	3462	3715	4175	4490
0.7	0.4037	3287	3323	3351	3383	3445	3595	3740	4013	4510	4850
0.75	0.4326	3402	3439	3468	3501	3565	3720	3870	4153	4668	5020
0.8	0.4614	3524	3552	3582	3616	3682	3843	3997	4290	4821	5185
0.9	0.5190	3728	3768	3800	3836	3906	4076	4241	4550	5114	5500
1.0	0.5768	3929	3971	4005	4043	4117	4296	4470	4796	5390	5795
1.25	0.7209	4393	4440	4478	4520	4602	4804	4997	5362	6027	6470
1.50	0.8650	4812	4864	4905	4952	5042	5262	5474	5874	6602	7100
1.75	1.0092	5197	5254	5298	5348	5446	5683	5912	6344	7131	7655
2.00	1.1535	5556	5616	5664	5718	5822	6076	6320	6783	7624	8195
2.25	1.2975	5892	5956	6007	6064	6174	6443	6704	7193	8085	8690
2.50	1.4418	6211	6278	6332	6392	6508	6792	7066	7582	8523	9150
2.75	1.5860	6514	6585	6641	6704	6827	7124	7412	7952	8938	9600
3.00	1.7300	6807	6879	6937	7003	7130	7440	7742	8307	9336	10000
4.00	2.3070	7857	7942	8010	8086	8233	8592	8940	9581	10780	11580
5.00	2.8840	8772	8867	8943	9027	9192	9593	9980	10710	12037	12900
6.00	3.4600	9623	9728	9810	9903	10083	10523	10950	11750	13203	14180

Properties of Dry Air

Barometric Pressure 29.921 Inches

Temperature Deg. Fahr.	Weight per Cubic Foot Pound	Ratio of Volume to Volume at 70 Deg. Fahr.	B. T. U. Absorbed By 1 Cu. Ft. Dry Air per Deg. Fahr.	Cubic Feet Dry Air Warmed 1 Degree per B. T. U.
—50	0.09690	0.7735	0.02335	42.82
—45	0.09573	0.7829	0.02307	43.34
—40	0.09459	0.7924	0.02280	43.87
—35	0.09348	0.8018	0.02253	44.39
—30	0.09239	0.8112	0.02226	44.91
—25	0.09133	0.8206	0.02201	45.43
—20	0.09029	0.8301	0.02176	45.96
—15	0.08927	0.8396	0.02151	46.48
—10	0.08828	0.8490	0.02127	47.00
— 5	0.08731	0.8585	0.02104	47.52
0	0.08636	0.8680	0.02080	48.08
5	0.08544	0.8772	0.02060	48.55
10	0.08453	0.8867	0.02039	49.05
15	0.08363	0.8962	0.02018	49.56
20	0.08276	0.9057	0.01998	50.05
25	0.08190	0.9152	0.01977	50.58
30	0.08107	0.9246	0.01957	51.10
35	0.08025	0.9340	0.01938	51.60
40	0.07945	0.9434	0.01919	52.11
45	0.07866	0.9530	0.01900	52.64
50	0.07788	0.9624	0.01881	53.17
55	0.07713	0.9718	0.01863	53.68
60	0.07640	0.9811	0.01846	54.18
65	0.07567	0.9905	0.01829	54.68
70	0.07495	1.0000	0.01812	55.19
75	0.07424	1.0095	0.01795	55.72
80	0.07356	1.0190	0.01779	56.21
85	0.07289	1.0283	0.01763	56.72
90	0.07222	1.0380	0.01747	57.25
95	0.07157	1.0472	0.01732	57.74
100	0.07093	1.0570	0.01716	58.28
105	0.07030	1.0660	0.01702	58.76
110	0.06968	1.0756	0.01687	59.28
115	0.06908	1.0850	0.01673	59.78
120	0.06848	1.0945	0.01659	60.28
125	0.06790	1.1040	0.01645	60.79
130	0.06732	1.1133	0.01631	61.32
135	0.06675	1.1230	0.01618	61.81
140	0.06620	1.1320	0.01605	62.31
145	0.06565	1.1417	0.01592	62.82
150	0.06510	1.1512	0.01578	63.37
160	0.06406	1.1700	0.01554	64.35
170	0.06304	1.1890	0.01530	65.36
180	0.06205	1.2080	0.01506	66.40
190	0.06110	1.2270	0.01484	67.40
200	0.06018	1.2455	0.01462	68.41
220	0.05840	1.2833	0.01419	70.48
240	0.05673	1.3212	0.01380	72.46
260	0.05516	1.3590	0.01343	74.46
280	0.05367	1.3967	0.01308	76.46
300	0.05225	1.4345	0.01274	78.50
350	0.04903	1.5288	0.01197	83.55
400	0.04618	1.6230	0.01130	88.50
450	0.04364	1.7177	0.01070	93.46
500	0.04138	1.8113	0.01018	98.24
550	0.03932	1.9060	0.00967	103.42
600	0.03746	2.0010	0.00923	108.35
700	0.03423	2.1900	0.00847	118.07
800	0.03151	2.3785	0.00782	127.88
900	0.02920	2.5670	0.00728	137.37
1000	0.02720	2.7560	0.00680	147.07
1200	0.02392	3.1335	0.00603	165.83

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Properties of Saturated Air

(Standard Atmospheric Pressure of 29.921 Inches of Mercury)

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Temperature Deg. Fahr.	Vapor Pressure Inches of Mercury	Weight per Cubic Foot of Mixture			B. T. U. Absorbed By 1 Cubic Foot Saturated Air per Deg. Fahr.	Cubic Feet Saturated Air Warmed 1 Degree per B. T. U.
		Weight of Dry Air Pound	Weight of Vapor Pound	Total Weight of Mixture Pound		
0	0.0383	0.08625	0.000069	0.08632	0.02082	48.04
10	0.0631	0.08433	0.000111	0.08444	0.02039	49.05
20	0.1030	0.08247	0.000177	0.08265	0.01998	50.05
30	0.1640	0.08063	0.000276	0.08091	0.01955	51.15
40	0.2477	0.07880	0.000409	0.07921	0.01921	52.06
50	0.3625	0.07694	0.000587	0.07753	0.01883	53.11
60	0.5220	0.07506	0.000829	0.07589	0.01852	54.00
70	0.7390	0.07310	0.001152	0.07425	0.01811	55.22
80	1.0290	0.07095	0.001576	0.07253	0.01788	55.93
90	1.4170	0.06881	0.002132	0.07094	0.01763	56.72
100	1.9260	0.06637	0.002848	0.06922	0.01737	57.57
110	2.5890	0.06367	0.003763	0.06743	0.01716	58.27
120	3.4380	0.06062	0.004914	0.06553	0.01696	58.96
130	4.5200	0.05716	0.006357	0.06352	0.01681	59.50
140	5.8800	0.05319	0.008140	0.06133	0.01669	59.92
150	7.5700	0.04864	0.010310	0.05894	0.01663	60.14
160	9.6500	0.04341	0.012956	0.05637	0.01664	60.10
170	12.2000	0.03735	0.016140	0.05349	0.01671	59.85
180	15.2900	0.03035	0.019940	0.05029	0.01682	59.45
190	19.0200	0.02227	0.024465	0.04674	0.01706	58.80
200	23.4700	0.01297	0.029780	0.04275	0.01750	57.15

Weight of Air at Various Pressures and Temperatures

(National Tube Co., Pittsburgh, Pa.)
(Based on an atmospheric pressure of 14.7 pounds)

Temperature of Air Degrees Fahrenheit	Gage Pressure, Pounds										
	0	5	10	20	30	40	50	60	70	80	90
	Weight in Pounds per Cubic Foot										
— 20	.0900	.1205	.1515	.2125	.2744	.3360	.3970	.4580	.5190	.5800	.6410
— 10	.0882	.1184	.1485	.2090	.2685	.3283	.3880	.4478	.5076	.5674	.6272
0	.0864	.1160	.1455	.2040	.2630	.3215	.3800	.4385	.4970	.5555	.6140
10	.0846	.1136	.1425	.1995	.2568	.3145	.3720	.4292	.4863	.5433	.6006
20	.0828	.1112	.1395	.1955	.2516	.3071	.3645	.4205	.4770	.5330	.5890
30	.0811	.1088	.1366	.1916	.2465	.3015	.3570	.4121	.4672	.5221	.5771
40	.0795	.1067	.1338	.1876	.2415	.2954	.3503	.4038	.4576	.5114	.5652
50	.0780	.1045	.1310	.1839	.2367	.2905	.3432	.3960	.4487	.5014	.5541
60	.0764	.1025	.1283	.1803	.2323	.2840	.3562	.3882	.4402	.4927	.5447
70	.0750	.1005	.1260	.1770	.2280	.2791	.3302	.3808	.4316	.4824	.5332
80	.0736	.0988	.1239	.1738	.2237	.2739	.3242	.3738	.4234	.4729	.5224
90	.0723	.0970	.1218	.1707	.2195	.2688	.3182	.3670	.4154	.4639	.5122
100	.0710	.0954	.1197	.1676	.2155	.2638	.3122	.3602	.4079	.4555	.5033
110	.0698	.0937	.1176	.1645	.2115	.2593	.3070	.3542	.4011	.4481	.4950
120	.0686	.0921	.1155	.1618	.2080	.2549	.3018	.3481	.3944	.4403	.4866
130	.0674	.0905	.1135	.1590	.2045	.2505	.2966	.3446	.3924	.4296	.4770
140	.0663	.0889	.1115	.1565	.2015	.2465	.2915	.3364	.3813	.4262	.4711
150	.0652	.0874	.1096	.1541	.1985	.2425	.2865	.3308	.3751	.4193	.4636
175	.0626	.0840	.1054	.1482	.1910	.2335	.2755	.3181	.3607	.4033	.4450
200	.0603	.0809	.1014	.1427	.1840	.2248	.2655	.3054	.3473	.3882	.4291
225	.0581	.0779	.0976	.1373	.1770	.2163	.2555	.2949	.3344	.3738	.4129
250	.0560	.0751	.0941	.1323	.1705	.2085	.2466	.2845	.3223	.3602	.3981
275	.0541	.0726	.0910	.1278	.1645	.2011	.2378	.2745	.3111	.3478	.3844
300	.0523	.0707	.0881	.1237	.1592	.1945	.2300	.2654	.3008	.3362	.3716
350	.0491	.0658	.0825	.1160	.1495	.1828	.2160	.2492	.2824	.3156	.3488
400	.0463	.0621	.0779	.1090	.1405	.1720	.2035	.2348	.2661	.2974	.3287
450	.0437	.0586	.0735	.1033	.1330	.1628	.1925	.2220	.2515	.2810	.3105
500	.0414	.0555	.0696	.0978	.1260	.1540	.1820	.2100	.2380	.2660	.2940
550	.0394	.0528	.0661	.0930	.1198	.1464	.1730	.1996	.2262	.2528	.2794
600	.0376	.0504	.0631	.0885	.1140	.1395	.1650	.1904	.2158	.2412	.2668

Climatic Conditions Compiled from Weather Bureau Records

Col. A	Col. B	Col. C	Col. D	Col. E	Col. F
State	City	Average Temperature Oct. 1st—May 1st	Lowest Temperature	Average Wind Velocity Dec., Jan., Feb. Miles per Hour	Direction of Prevailing Wind Dec., Jan., Feb.
Ala.	Mobile	57.7	— 1	8.3	N
	Birmingham	53.9	—10	8.6	N
Ariz.	Phoenix	59.5	16	3.9	E
	Flagstaff	34.9	—25	6.7	SW
Ark.	Fort Smith	49.5	—15	8.0	E
	Little Rock	51.6	—12	9.9	NW
Cal.	San Francisco	54.3	29	.....	N
	Los Angeles	58.6	28	.....	NE
Colo.	Denver	39.3	—29	7.4	S
	Grand Junction	39.2	—16	5.6	SE
Conn.	New Haven	38.0	—14	9.3	N
D. C.	Washington	43.2	—15	7.3	NW
Fla.	Jacksonville	61.9	10	8.2	NE
Ga.	Atlanta	51.4	— 8	11.8	NW
	Savannah	58.4	8	8.3	NW
Idaho	Lewiston	42.5	—13	4.7	E
	Pocatello	36.4	—20	9.3	SE
Ill.	Chicago	36.4	—23	17.0	SW
	Springfield	39.9	—24	10.2	NW
Ind.	Indianapolis	40.2	—25	11.8	S
	Evansville	44.1	—15	8.4	S
Iowa	Dubuque	33.9	—32	6.1	NW
	Sioux City	32.1	—35	12.2	NW
Kans.	Concordia	38.9	—25	7.3	N
	Dodge City	40.2	—26	10.4	NW
Ky.	Louisville	45.2	—20	9.3	SW
La.	New Orleans	61.5	7	9.6	N
	Shreveport	56.2	— 5	7.7	SE
Me.	Eastport	31.1	—23	13.8	W
	Portland	33.6	—17	10.1	NW
Md.	Baltimore	43.6	— 7	7.2	NW
Mass.	Boston	37.6	—13	11.7	W
Mich.	Alpena	29.1	—27	11.3	W
	Detroit	35.4	—24	13.1	SW
	Marquette	27.6	—27	11.4	NW
Minn.	Duluth	25.1	—41	11.1	SW
	Minneapolis	29.6	—33	11.5	NW
Miss.	Vicksburg	56.0	— 1	7.6	SE
Mo.	St. Joseph	40.3	—24	9.1	NW
	St. Louis	43.3	—22	11.8	NW
	Springfield	43.0	—29	11.3	SE
Mont.	Billings	34.7	—49	.....	W
	Havre	27.7	—57	8.7	SW
Nebr.	Lincoln	37.0	—29	10.9	N
	North Platte	34.6	—35	9.0	W
Nev.	Tonopah	39.6	— 7	9.9	SE
	Winnemucca	37.9	—28	9.5	NE
N. H.	Concord	33.4	—35	6.0	NW
N. J.	Atlantic City	41.6	— 7	10.6	NW
N. Y.	Albany	35.1	—24	7.9	S
	Buffalo	34.7	—14	17.7	W
	New York	40.3	— 6	13.3	NW

Col. A	Col. B	Col. C	Col. D	Col. E	Col. F
State	City	Average Temperature Oct. 1st—May 1st	Lowest Temperature	Average Wind Velocity Dec., Jan., Feb. Miles per Hour	Direction of Prevailing Wind Dec., Jan., Feb.
N. M.	Santa Fe	38.0	—13	7.3	NE
N. C.	Raleigh	49.7	— 2	7.3	SW
	Wilmington	53.1	5	8.9	SW
N. D.	Bismark	24.5	—45	.....	NW
	Devil's Lake	18.9	—44	11.4	W
Ohio	Cleveland	36.9	—17	14.5	SW
	Columbus	39.9	—20	9.3	SW
Okla.	Oklahoma City	48.0	—17	12.0	N
Ore.	Baker	34.1	—20	6.0	SE
	Portland	45.9	— 2	6.5	S
Pa.	Philadelphia	41.9	— 6	11.0	NW
	Pittsburgh	40.8	—20	13.7	NW
R. I.	Providence	37.6	— 9	14.6	NW
S. C.	Charleston	56.9	7	11.0	N
	Columbia	53.7	— 2	8.0	NE
S. D.	Huron	28.1	—43	11.5	NW
	Rapid City	32.3	—34	7.5	W
Tenn.	Knoxville	47.0	—16	6.5	SW
	Memphis	50.9	— 9	9.6	NW
Texas	El Paso	53.0	— 2	10.5	NW
	Fort Worth	54.7	— 8	11.0	NW
	San Antonio	60.7	4	8.2	N
Utah	Modena	38.1	—24	8.9	W
	Salt Lake City	40.0	—20	4.9	SE
Vt.	Burlington	29.3	—27	12.9	S
Va.	Norfolk	49.1	2	9.0	N
	Lynchburg	45.2	— 7	5.2	NW
	Richmond	47.4	— 3	7.4	S
Wash.	Seattle	45.3	3	9.1	SE
	Spokane	37.5	—30	.....	SW
W. Va.	Elkins	38.8	—21	4.8	W
	Parkersburg	41.9	—27	6.6	S
Wis.	Green Bay	28.6	—36	12.8	SW
	La Crosse	31.2	—43	5.6	NW
	Milwaukee	33.0	—25	11.7	W
Wyo.	Sheridan	31.0	—45	5.3	NW
	Lander	28.9	—36	3.0	NE
Alta.	Edmonton	23.3	—57	4.5	W
B. C.	Victoria	43.8	— 2	8.9	N
B. C.	Vancouver	41.7	2	4.2	E
Man.	Winnipeg	17.2	—46	12.4	SW
N. B.	Fredericton	27.1	—35	8.7	NW
N. S.	Yarmouth	35.5	—12	13.0	NW
Ont.	London	32.5	—26	.....	.....
Ont.	Ottawa	26.9	—33	7.5	W
Ont.	Pt. Arthur	21.6	—51	.....	.....
Ont.	Toronto	32.0	—26	13.5	SW
P. E. I.	Charlottetown	30.1	—23	8.7	NW
Que.	Montreal	27.4	—27	15.4	SW
Que.	Quebec	24.4	—34	15.0	SW
Sask.	Prince Albert	14.7	—70	3.2	SW
Yukon	Dawson	1.6	—68	.....	.....

List of Altitudes of Various Places in the United States

Feet Above Sea Level

State Town	Feet
Alabama—	
Boaz	1,059
Carlisle	1,056
Delta	1,065
Rock City	1,724
Arizona—	
Phoenix	1,082
Tucson	2,387
Fort Thomas	2,685
Prescott	5,320
Fort Defiance	6,862
Flagstaff	6,886
Demotte Park	9,000
Arkansas—	
Fayetteville	1,342
Dallas	1,100
California—	
Fleming	8,745
Bodie	8,248
Truckee	5,820
Fordice	6,500
Nevada City	3,520
Pasadena	827
Riverside	1,000
Colorado—	
Augusta	12,615
Baker Mine	11,956
Canyon City	5,329
Colorado City	4,050
Comanche	11,929
Como	9,787
Dayton	9,441
Denver	5,183
Dillon	8,868
Georgetown	8,594
Leadville	10,197
Connecticut—	
Colebrook	1,000
Norfolk	1,240
7 towns average each	614
32 towns not over	500
Georgia—	
Atlanta	1,033
Decatur	1,019
Gainesville	1,217
Marietta	1,138
Waco	1,325
Idaho—	
Boise	2,880
Galena	7,294
Paris	6,018
Pleasant Valley	6,499
Illinois—	
34 towns average	670
8 towns average	430
Indiana—	
13 towns average	1,000
No towns under	500
Iowa—	
Waneta	1,562
Average towns listed	971
Kansas—	
Astor	3,753
Crosby	4,440
Scott	2,971
Winona	3,322
Average of 23 others	1,066
Kentucky—	
7 towns average	1,000
Louisiana—	
All below	500
Maine—	
23 towns below	500
Maryland—	
Altamont	2,620
Deer Park	2,441
Fairview	2,680
Frostburg	2,000
Sunnyside	2,440
Swanton	2,282
6 other towns average	1,000
10 other towns over	500
Massachusetts—	
Wilcox	2,155
Gardner	1,034
Pittsfield	1,013
7 other towns average	728
Michigan—	
Bessemer	1,486
Cadillac	1,293
Ishpeming	1,402
Summit	1,750
9 other places about	1,000
21 others above	677
None as low as	500
Minnesota—	
Avoca	1,956
Coteau de Prairies	1,960
Minneapolis	838
St. Paul	911
St. Cloud	1,027
Average of 10 others	1,260
Mississippi—	
Brookhaven	500
Holly Springs	592
Average of 14 others	247
Missouri—	
Carthage	1,007
Exeter	1,560
Independence	1,000
Ozark	1,113
Republic	1,316
Springfield	1,350
St. Louis	485
11 others average	761
Montana—	
Benton	2,869
Billings	3,117
Boulder	4,919
Butte	5,484
Helena	4,157
Needles	10,933
Pyramid	10,720
Nebraska—	
Kearney	2,119
Robinson	3,758
Sydney	5,080
Harrison	4,840
Lincoln	1,154
Venango	3,588
Weir	3,459
Nevada—	
Birchin	10,345
Chalk Walk	7,604
Reno	4,500
San Juan	10,982
Silver City	4,940
Truckee	5,100
New Hampshire—	
Bethlehem	1,187
Cheshire	1,140
Colebrook	1,116
Crawford	1,892
Campton	1,754
New Jersey—	
Ford	1,146
Summit	1,015
Macopin	1,067
24 others above	500
New Mexico—	
Alameda	4,906
Albuquerque	4,950
Canon City	5,321
Cimarron	6,385
North Carolina—	
Asheville	1,986
Biltmore	1,996
Skyuka	3,200
North Dakota—	
Beach	2,756
Belfield	2,759
Bismarck	1,672
Fargo	903
Grand Forks	836
Minot	1,557
Williston	1,864
New York—	
Alfred	1,659
Arkville	1,344
Bath	1,105
Boonville	1,135
Brookfield	1,135
Cooperstown	1,250
Cortland	1,122
60 others range from 1,250 to 2,145 feet above sea level.	
105 other towns above 500 feet, but under 1,000, yet averaging 800 feet.	
Ohio—	
20 towns over	1,000
35 towns over 500 and less than	900
Average for 56 towns	935
Oklahoma—	
Goodwin	2,528
Hamlin lowest at	488
24 towns average	1,338
Oregon—	
Watchman	8,125
Umatilla the lowest	247
Average 9 more towns	3,773
Pennsylvania—	
Allegrippus	1,936
Altoona	1,192
Bedford	1,060
Berlin	2,176
Crawford	2,097
Cresson	2,022
Gallitzan	2,165
Lafayette	2,075
Somerset	2,129
Only 22 towns out of 110 towns less than	500
South Carolina—	
8 of 12 towns over	500
Rest of State below.	
South Dakota—	
Blackhawk	3,494
Custer	5,303
Deadwood	4,545
Dumont	6,195
Lead City	5,099
Perry	5,400
Portland	6,430
Silver City	4,592
Tennessee—	
Bristol	1,678
Fairmount	1,950
Hillsboro	1,065
Jonesboro	1,734
Knoxville	950
Mountain City	2,481
Sewanee	1,864
3 of 12 towns less than	500
Texas—	
Amarillo	3,615
Blodgett	5,805
Gaudalupe	7,844
Marathon	4,040
Pecos City	2,581
Rio Grande	3,461
Ryan	4,743
Wendell	4,221
Texline	4,221
Utah—	
Alta	9,265
Aspen	8,927
Cisco	4,385
Croydon	5,245
Fort Duchesne	4,941
Frisco	7,318
Odgen	4,310
Panguitch	7,000
Hayfields	7,500
Schofield	7,635
Timpanogus	11,957
Vermont—	
Halifax	1,600
Ludlow	1,080
Purchase	2,544
Roxbury	1,016
Virginia—	
Apple Orchard	4,246
Bristol	1,676
Clinton Forge	1,052
Harrisonburg	1,338
Hawksvill	4,006
Hot Springs	2,195
Paddy	4,477
Radford	1,773
Red Rock	4,450
Washington—	
Davenport	2,420
East Spokane	2,030
Snoquaimie	6,386
Spokane	1,910
Winona	1,480
West Virginia—	
Bluefield	2,557
Clarksburg	1,034
Greenbrier	1,580
Princeton	2,469
Average of State above sea level over	500
Wisconsin—	
Bessemer	1,492
Casenovia	1,520
Chelsea	1,528
Deer Brook	1,536
Elcho	1,639
Gagen	1,645
Hixon	1,630
Hurley	1,502
Irma	1,509
Worcester	1,608
No town reported being under	500
Wyoming—	
Cheyenne	6,054
Cody	5,018
Hooker	12,900
Laramie	7,152
Medicine Bow	6,566
Needles	9,700
Piedmont	7,077
Sheridan	3,738
This being the lowest altitude reported.	

Domestic Fuel Oils

(Underwriters' Laboratories)

Grade of Oil	Flash Point F Min.	Flash Point F Max.	Water and Sediment Per Cent	Distillation 10 Per Cent Point	Distillation End Point	Distillation 90 Per Cent Point	Viscosity Max.	Pour Point Max.
No. 1, light domestic oil.	110	165	.05	420	600	.....	.....	15
No. 2, medium domestic oil.	125	190	.05	440	.....	620	.....	15
No. 3, heavy domestic oil.	150	200	.1	460	.....	675	55 seconds at 100 F. Saybolt Univ.	15

It is customary to assign the following gravity values:

No. 1.....36–40 Baumé
No. 2.....32–36 Baumé
No. 3.....28–32 Baumé

Specific Heat of Fuel Oils

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	Specific Gravity	Specific Heat
California	0.960	0.398
Japan	0.862	0.453
Pennsylvania	0.810	0.500
Russia	0.908	0.435

Recommended Setting Heights for Heating Boilers Equipped with Mechanical Stokers

Midwest Stoker Association

Firebox Boilers

Actual Load....	2500	5000	7500	10000	12500	15000	20000	25000	30000
A	18"	18"	20"	20"	22"	22"	24"	24"	24"
B	42"	48"	54"	60"	66"	72"	78"	84"	84"

A = Distance from bottom of Water Leg to floor.
B = Distance from Crown Sheet to bottom of Water Leg.

Compact Welded Boilers

Actual Load....	2500	5000	7500	10000	12500	15000	20000	25000	30000
A	18"	18"	20"	20"	22"	22"	24"	24"	24"
B	30"	33"	36"	42"	45"	48"	54"	60"	60"

A = Distance from bottom of Water Leg to floor.
B = Distance from Crown Sheet to bottom of Water Leg.

H. R. T. Boilers

HP.	50	75	100	125	150	175	200	225	250	275	300
A	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-0"	7'-6"	8'-0"	8'-6"	9'-0"	9'-0"

A = Distance from bottom of shell to floor.
HP. = Installed horsepower.

In case of the FIREBOX or COMPACT WELDED type boilers the desired setting height can be obtained by combining the A and B dimensions. The load ratings shown for this class of boilers are actual developed loads in square feet of equivalent cast-iron steam radiation and are not manufacturers rating. The setting heights given for H. R. T. boilers may be used for developed loads up to 50 per cent above normal rating.

The above tables were prepared by the Midwest Stoker Association as a guide for architects and consulting engineers in determining the head room requirements for heating plants.

Recommended Minimum Chimney Sizes for Heating Boilers and Furnaces

From the A. S. H. V. E. Code of Minimum Requirements for the Heating and Ventilation of Buildings (Edition of 1929).

Warm Air Furnace Capacity in Sq. In. of Leader Pipe	Steam Boiler Capacity Sq. Ft. of Radiation	Hot Water Heater Capacity Sq. Ft. of Radiation	Nominal Dimensions of Fire Clay Lining in Inches	Rectangular Flue: Actual Inside Dimensions of Fire Clay Lining in Inches	Rectangular Flue: Actual Area Sq. In.	Round Flue: Inside Diameter of Lining in Inches	Round Flue: Actual Area Sq. In.	Height in Feet Above Grate
790	590	973	8½x13	7 x11½	81	.....	.....	35
1000	690	1,140	.....	.....	.....	10	79	.....
	900	1,490	13x13	11¼x11¼	127	.....	.....	.....
	900	1,490	8½x18	6¾x16¼	110	.....	.....	.....
	1,100	1,820	.....	.....	.....	12	113	40
	1,700	2,800	13x18	11¼x16¼	183	.....	.....	.....
	1,940	3,200	.....	.....	.....	15	177	.....
	2,130	3,520	18x18	15¾x15¾	248	.....	.....	.....
	2,480	4,090	20x20	17¼x17¼	298	.....	.....	45
	3,150	5,200	.....	.....	.....	18	254	50
	4,300	7,100	.....	.....	.....	20	314	.....
	4,600	7,590	20x24	17x21	357	.....	.....	.....
	5,000	8,250	24x24	21x21	441	.....	.....	55
	5,570	9,190	.....	24x24*	576	.....	.....	60
	5,580	9,200	.....	.....	.....	22	380	.....
	6,980	11,500	.....	.....	.....	24	452	65
	7,270	12,000	.....	24x28*	672	.....	.....	.....
	8,700	14,400	.....	28x28*	784	.....	.....	.....
	9,380	15,500	.....	.....	.....	27	573	.....
	10,150	16,750	.....	30x30*	900	.....	.....	.....
	10,470	17,250	.....	28x32*	896	.....	.....	.....

*Dimensions are for unlined rectangular flues.

Theoretical Draft — Available Draft

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When gases in the chimney are stationary, the draft created is termed the **theoretical draft.** When the gases are flowing, the theoretical intensity is diminished by the draft loss due to friction, the difference between the two being termed the **available draft.** The general equation for the available draft intensity of a natural draft chimney with a circular section is as follows:

$$Da = 2.96HBo\left(\frac{Wo}{To} - \frac{Wc}{Tc}\right) - \frac{0.00126W^2TcfL}{D^5BoWc}$$

where

Da = available draft, inches of water.
H = height of chimney above grate bars, feet.
Bo = barometric pressure corresponding to altitude, inches of mercury.
Wo = unit weight of a cubic foot of air at 0 deg. Fahrenheit and sea level atmospheric pressure, pounds per cubic foot.
Wc = unit weight of a cubic foot of chimney gases at 0 deg. Fahrenheit and sea level atmospheric pressure, pounds per cubic foot.
To = absolute temperature of atmosphere, degrees Fahrenheit.
Tc = absolute temperature of chimney gases, degrees Fahrenheit.
W = amount of gases generated in the combustion chamber of the boiler and passing through the chimney-pounds per second.
f = coefficient of friction.
L = length of friction duct of the chimney, feet.
D = minimum diameter of chimney, feet.

The first term of the right hand expression of Equation 1 represents the theoretical draft intensity and the second term, the loss due to friction.

Weight and Calorific Value of Various Gases at 32 Deg. F. and Atmospheric Pressure With Theoretical Amount of Air Required for Combustion

Reprinted by permission from Heating, Ventilation and Air Conditioning, by Harding and Willard, published by John Wiley & Sons, Inc.

Gas	Symbol	Cubic Feet of Gas per Pound	Calorific Value B. T. U. per Pound	Calorific Value B. T. U. per Cubic Foot	Cubic Feet of Air Required per Pound of Gas	Cubic Feet of Air Required per Cubic Foot of Gas
Hydrogen	H_2	177.90	62,000	349	428.25	2.41
Carbon monoxide	CO	12.81	4,450	347	30.60	2.39
Methane	CH_4	22.37	23,550	1053	214.00	9.57
Acetylene	C_2H_2	13.79	21,465	1556	164.87	11.93
Olefiant gas	C_2H_4	12.80	21,440	1675	183.60	14.33
Ethane	C_2H_6	11.94	22,230	1862	199.88	16.74

Factors of Evaporation

(Union Steam Pump Co., Battle Creek, Mich.)

To find the equivalent evaporation from and at 212 degrees, multiply factor found in the table by actual water evaporated.

Temperature of Feed Water Degrees F.	Steam Pressure by Gage																	
	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220
32	1.214	1.216	1.220	1.222	1.225	1.227	1.229	1.231	1.232	1.234	1.236	1.237	1.239	1.240	1.241	1.243	1.244	1.245
40	1.206	1.209	1.212	1.214	1.216	1.219	1.220	1.222	1.224	1.226	1.227	1.229	1.230	1.232	1.233	1.234	1.236	1.237
50	1.195	1.197	1.201	1.204	1.206	1.208	1.210	1.212	1.214	1.215	1.217	1.218	1.220	1.221	1.225	1.224	1.225	1.226
60	1.185	1.188	1.191	1.193	1.196	1.198	1.200	1.202	1.203	1.205	1.207	1.208	1.210	1.211	1.212	1.214	1.215	1.216
70	1.175	1.178	1.180	1.183	1.185	1.187	1.189	1.191	1.193	1.194	1.196	1.197	1.199	1.200	1.202	1.203	1.205	1.206
80	1.164	1.167	1.170	1.173	1.175	1.177	1.179	1.181	1.183	1.184	1.186	1.187	1.189	1.190	1.192	1.193	1.194	1.195
90	1.154	1.157	1.160	1.162	1.165	1.167	1.169	1.170	1.172	1.174	1.176	1.177	1.179	1.180	1.181	1.183	1.184	1.185
100	1.144	1.147	1.150	1.152	1.154	1.156	1.158	1.160	1.162	1.164	1.165	1.167	1.168	1.170	1.171	1.172	1.174	1.175
110	1.133	1.136	1.139	1.142	1.144	1.146	1.148	1.150	1.152	1.153	1.155	1.156	1.158	1.159	1.160	1.162	1.163	1.164
120	1.123	1.126	1.129	1.131	1.133	1.136	1.138	1.140	1.141	1.143	1.145	1.146	1.147	1.149	1.150	1.151	1.153	1.154
130	1.113	1.116	1.118	1.121	1.123	1.125	1.127	1.129	1.130	1.132	1.134	1.136	1.137	1.138	1.140	1.141	1.142	1.144
140	1.102	1.105	1.108	1.110	1.113	1.115	1.117	1.119	1.120	1.122	1.124	1.125	1.127	1.128	1.129	1.131	1.132	1.133
150	1.091	1.095	1.098	1.100	1.102	1.104	1.106	1.108	1.110	1.111	1.113	1.115	1.116	1.118	1.119	1.120	1.121	1.123
160	1.081	1.084	1.087	1.090	1.092	1.094	1.096	1.098	1.100	1.101	1.103	1.104	1.106	1.107	1.108	1.110	1.111	1.112
170	1.070	1.074	1.077	1.079	1.081	1.083	1.085	1.087	1.089	1.091	1.092	1.094	1.095	1.097	1.098	1.099	1.101	1.102
180	1.060	1.063	1.066	1.069	1.071	1.073	1.075	1.077	1.079	1.080	1.082	1.083	1.085	1.086	1.088	1.089	1.090	1.091
190	1.050	1.053	1.056	1.058	1.060	1.063	1.065	1.066	1.068	1.070	1.071	1.073	1.074	1.076	1.077	1.078	1.080	1.081
200	1.039	1.043	1.045	1.048	1.050	1.052	1.054	1.058	1.058	1.059	1.061	1.063	1.064	1.065	1.067	1.068	1.069	1.071
210	1.029	1.032	1.035	1.037	1.040	1.042	1.044	1.046	1.047	1.049	1.051	1.052	1.053	1.055	1.056	1.057	1.059	1.060

Rules for Firing a Boiler*

Soft Coal

1. Thoroughly clean flues and passages of boiler at least once a day.

2. Steam boilers should be blown out under pressure to remove grease and dirt. This is very important and should be done at once by an experienced man. Hot water plants should have water renewed in fall before starting heating season.

3. Clean base of chimney and smoke pipe once a year.

Method of Firing

1. Fire often and lightly, keeping grates covered.

2. Do not spoil fire by stirring it around or mixing it up.

3. Use slice bar under fire bed on top of grates, lifting only enough to break or crack open the mass. Keep fire free from clinkers.

4. In large boilers use the alternate method of firing, first, one-half of grate, and next, firing the other half. This is done to have a bright fire to assist in burning the gases from the coal just fired and to make heat until the fresh coal ignites.

5, Don't smother your fire.

6. Use the smaller prepared sizes of coal if possible. If you cannot get the small coal, break the large coal into small lumps. Wet all soft coal before firing.

7. The best way to fire round boilers is to get the house warm by firing lightly and often. Then fill fire pot full of wet coal. Next take a piece of pipe or broom stick and poke a hole down through the fuel bed to the grate. Carefully withdraw and leave hole in fuel bed. Check off the draft so that it will not burn too rapidly. This hole soon will carry a large blue flame, which is gas driven off from the fresh coal. If this method is followed, the gas will not be lost up the chimney.

Ashes

1. Don't shake grate violently. It wastes coal.

2. Keep the ash pit clean.

3. Never allow ashes to get within six inches of grate.

4. Remove ashes from last shaking before shaking again.

*These rules are not intended for large consumers, but for householders, and not for apartment janitors, but for laymen who know little of the science of coal saving.

Hard Coal

1. Thoroughly clean flues and passages of boiler at least once every week.

2. Steam boilers should be blown out in same manner recommended for soft coal. Also clean base of chimney in same manner.

Method of Firing

1. In using anthracite coal a bright fire should always be kept if you wish heat. In building up a fire use a small quantity often with good draft until the fire pot is full to the center of fire door. Draft then can be checked to hold the heat desired.

2. A hard coal fire should never be disturbed by stirring or breaking up with a poker.

3. Remove clinkers, if any, through grate or clinker door.

4. Use size of coal recommended by maker of the boiler. Don't wet hard coal.

Ashes

1. Rules same as for soft coal.

General Remarks

1. Cover boiler and pipes with asbestos or other insulation; also weather strip your windows and doors or stuff cracks with cotton.

2. Keep your room at 68 degrees (best heat for health).

3. Heat only the rooms you use all the time.

4. Close bed room doors when windows are open and shut off radiator.

5. When any room is kept at a lower temperature than balance of rooms keep door closed.

6. Protect a hot water radiator in room when windows are open by throwing a blanket or rug over a radiator. Radiator may then be shut off without fear of freezing.

Draft

1. Perfect combustion cannot be secured without proper draft. Call in a local plumber or steam fitter for advice on draft regulation.

Approximate Heat Emissions, Condensation Factors and Equivalent Ratios for Various Types of Radiating Surfaces with Room Temperature of 70 F.[a]

Fluid	Radiation	Heat Emission Btu per Sq. Ft. Per Hr.	Equivalent Sq. Ft. Column or Tube Radiation		Sq. Ft. Equivalent to One Sq. Ft. Column Steam	Condensation Factor Lb. Per Sq. Ft. Per Hr.
			Steam[b] 240 Btu	Hot Water 150 Btu		
Steam at 215 F.	Column or tube	240	1.00	1.60	1.00	0.25
	Wall or pipe coil	300	1.25	2.00	0.80	0.31
	Bare pipe.....	360	1.50	2.40	0.67	0.38
Water at 170 F.	Column or tube	150	0.62	1.00	1.60	.....
	Wall or pipe coil	190	0.80	1.27	1.26	.....
	Bare pipe.....	225	0.94	1.50	1.07	.....

[a] These are average values which do not take into account the actual number or height of columns, tubes or coils in a radiator nor whether the surface is horizontal or vertical. For more complete data, reference may be made to the *A. S. H. V. E. Guide*, particularly the 1928 edition in the case of column radiators.

[b] This column also represents heat emission relative to column steam radiation.

Conversion Factors for Computing Under Given Conditions (A) Heat Emitted by Column or Tube Radiation, (B) Equivalent Nominal Radiation[a b]

Steam Pressure		Temp. of Steam or Water in F	Temperature of Air					
Vacuum In. Hg.	Lb. Absolute		80 F	75 F	70 F	65 F	60 F	50 F
22.4	3.72	150	0.388	0.424	0.462	0.499	0.538	0.617
20.3	4.74	160	0.462	0.499	0.538	0.577	0.617	0.697
17.8	5.99	170	0.538	0.577	0.617	0.657[d]	0.697	0.782
14.7	7.51	180	0.617	0.657	0.697	0.740	0.782	0.868
10.9	9.34	190	0.697	0.740	0.782	0.825	0.868	0.955
6.5	11.52	200	0.782	0.825	0.868	0.911	0.955	1.045
3.4	13.03	206	0.832	0.876	0.920	0.967	1.010	1.101
Lb. Gage[c]								
0	14.7	212	0.873	0.928	0.974	1.017	1.063	1.126
1	15.6	215	0.911	0.955	1.000	1.045	1.091	1.183
2	16.9	219	0.947	0.991	1.036	1.081	1.128	1.220
3	17.9	222	0.973	1.018	1.063	1.109	1.155	1.249
4	18.9	225	1.000	1.045	1.091	1.137	1.183	1.277
5	19.6	227	1.018	1.063	1.109	1.155	1.202	1.296
6	20.8	230	1.045	1.091	1.137	1.183	1.230	1.325
8	22.8	235	1.091	1.137	1.183	1.230	1.277	1.373
10	25.0	240	1.137	1.183	1.230	1.277	1.325	1.421

[a] Based on conversion factor of *A. S. H. V. E. Guide* equal to $[(t_f - t_a)/(215-70)]^{1.3}$ where t_f = fluid temperature, t_a = air temperature.

[b] (Conversion factor) × (heat emission of conductor containing 215-F fluid in air at 70 F) = (Btu per hr. heat emission of one sq. ft. of radiation under given conditions).

(Conversion factor) × (sq. ft. of conductor operating under given conditions) = (equivalent sq. ft. of same conductor containing 215-F fluid in air at 70 F).

[c] Approximate.

[d] This factor based on the heat emission ratio of nominal hot water radiation to nominal steam radiation would be 150 ÷ 240 = 0.625.

Approximate Weight in Lb. of 125-Lb. Standard Cast Iron Flanged Fittings

Nominal Size Inches	90° Ells	45° Ells	L.R. Ells	Base Ells	Tees	Crosses	Laterals	Scd. Flgs.	Blind Flgs.	Flgd. Unions
½	....	....	.....	.....	....	.....	.....	.....	.....	.....
¾	....	....	.....	.....	....	.....	.....	.....	.....	.....
1	....	....	.....	.....	....	.....	.....	2	2	3
1¼	....	....	.....	.....	....	.....	.....	3	3	4
1½	....	....	.....	.....	....	.....	.....	4	4	5
2	18	15	.....	.....	26	34	.....	5	5	6
2½	22	20	.....	.....	34	43	.....	7	7	9
3	30	27	.....	.....	45	58	.....	8½	9	12
3½	37	33	.....	.....	55	74	.....	11	13	15
4	41	38	60	70	67	89	90	12	17	17
4½	46	43	70	.....	75	100	100	13	18	21
5	63	53	80	100	90	121	120	15	21	25
6	75	68	100	125	115	152	140	18	27	34
7	100	90	150	150	150	200	190	25	37	48
8	120	100	185	190	170	236	230	32	45	57
9	150	130	225	230	220	305	310	35	56	65
10	205	160	275	270	285	400	325	44	67	84
12	285	230	410	370	430	570	600	65	99	116
14	390	300	600	540	550	750	750	95	133	.....
15	440	330	675	.....	660	800	925	100	150	.....
16	525	400	875	700	760	1000	1000	105	175	.....
18	....	....	.....	.....	....	.....	.....	125	215	.....
20	....	....	.....	.....	....	.....	.....	175	281	.....
22	....	....	.....	.....	....	.....	.....	195	347	.....
24	....	....	.....	.....	....	.....	.....	230	422	.....

Approximate Weights in Lb. per Square Foot of Rated Surface for Cast Iron Radiators[a]

Type Radiator	Cast Iron	Water
Column.....	7.50	1.00
Tube.....	5.50	1.00
Light weight.....	4.125	0.75
Wall.....	7.00	1.40

[a] The specific heats in Btu per lb. per F are as follows: water = 1.00; cast iron = 0.13.

Typical Weights of Boilers and Water Content in Lb. per Square Foot of Heating Surface[a]

Boiler Heating Surface Sq. Ft.	Metal Weight		Water Weight			
			Steam Boiler		Water Boiler	
	Cast Iron Sectional	Steel Portable Fire-Box Type	Cast Iron Sectional	Steel Portable Fire-Box Type	Cast Iron Sectional	Steel Portable Fire-Box Type
15–25	55–65	40–45	8	.....	11	.....
25–50	45–55	35–40	7–8	12–14	10–11	16–19
50–100	40–50	25–35	6–8	12–14	9–11	14–19
100–500	35–40	15–25	6–7	9–14	9–11	14–19
500–1000	30–35	12–22	6	9–10	10	13–14
1000–3000	30–35	10–17	.....	7–10	.....	10–14

[a] The specific heats in Btu per lb. per F are as follows: water = 1.00; cast iron = 0.13; steel = 0.117.

Tables on this page and the two pages following from "Selecting the Right Size Heating Boiler" by Sabin Crocker, *Heating, Piping and Air Conditioning*, Feb.-April, 1932.

Heat Emission from Horizontal Bare Iron or Steel Pipes in Air at 70 F

Nominal Pipe Size	External Surface: Linear Ft. Per Sq. Ft. Surface	External Surface: Sq. Ft. Surface Per Linear Ft.	Heat Emission[a] Btu Per Linear Ft. Per Hour Per F: Steam 215 F	Heat Emission[a] Btu Per Linear Ft. Per Hour Per F: Hot Water 170 F	Total Heat Emission[b] Btu Per Sq. Ft. Per Hour: Steam[c] 215 F	Total Heat Emission[b] Btu Per Sq. Ft. Per Hour: Hot Water 170 F	Equivalent Sq. Ft. of Column or Tube Radiation With Steam at 215 F: Steam 240 Btu	Equivalent Sq. Ft. of Column or Tube Radiation With Steam at 215 F: Hot Water 150 Btu	Equivalent Sq. Ft. of Column or Tube Radiation With Hot Water at 170 F: Steam 240 Btu	Equivalent Sq. Ft. of Column or Tube Radiation With Hot Water at 170 F: Hot Water 150 Btu	Condensation Factor, Lb. Per Hr. Per Sq. Ft. Steam at 215 F
½	4.547	0.220	0.643	0.594	425	270	1.76	2.82	1.13	1.80	0.441
¾	3.637	0.275	0.770	0.716	407	259	1.68	2.68	1.09	1.74	0.418
1	2.904	0.344	0.929	0.862	391	249	1.61	2.58	1.04	1.67	0.403
1¼	2.301	0.435	1.16	1.065	387	246	1.60	2.56	1.02	1.63	0.400
1½	2.010	0.498	1.30	1.197	379	241	1.57	2.51	1.00	1.60	0.392
2	1.608	0.622	1.58	1.461	368	234	1.53	2.45	0.98	1.57	0.383
2½	1.328	0.753	1.89	1.742	363	231	1.50	2.40	0.96	1.54	0.375
3	1.091	0.917	2.26	2.063	358	226	1.46	2.34	0.94	1.50	0.366
3½	0.954	1.047	2.53	2.333	350	223	1.45	2.31	0.92	1.48	0.362
4	0.848	1.178	2.81	2.600	346	220	1.43	2.28	0.92	1.47	0.356
5	0.686	1.456	3.41	3.140	340	216	1.40	2.24	0.90	1.44	0.350
6	0.576	1.734	4.05	3.703	338	213	1.40	2.24	0.89	1.42	0.349
8	0.443	2.257	5.19	4.720	334	209	1.39	2.23	0.87	1.39	0.348
10	0.355	2.817	6.38	5.820	329	207	1.37	2.19	0.86	1.38	0.343
12	0.299	3.338	7.53	6.870	327	206	1.36	2.18	0.86	1.37	0.340
18	0.212	4.717	10.41	9.50	320	202	1.33	2.13	0.84	1.35	0.332
Flat	.....	.....	.....	.....	303	192	1.26	2.02	0.80	1.28	0.315

[a] Based on experimental data obtained at the Mellon Institute.

[b] An average heat emission with steam at 215 F and air at 70 F is 360 Btu per sq. ft. per hr. and for hot water at 170 F and air at 70 F, 225 Btu per sq. ft. per hr.

c Conversion to other conditions of fluid or air temperatures may be accomplished by use of the following formula: $H = Hs\,[(t_f\text{-}t_a)/(215\text{-}70)]^{1.22}$ where H = heat emitted under desired conditions, t_f and t_a = corresponding fluid and air temperatures respectively, Hs = heat emitted with fluid temperature of 215 F in air at 70 F. Conversion factors given in Table 2 and computed from the similar formula $H = Hs\,[(t_f\text{-}t_a)/(215\text{-}70)]^{1.3}$ will produce results sufficiently accurate for most practical applications.

Water Heating Loads vs. Temperature Rise for Various Gallon-Per-Hour Rates[a]

Gallons Heated Per Hour	100 F Rise: 1,000 Btu Per Hour	100 F Rise: Equivalent Sq. Ft. 240 Btu Radiation	110 F Rise: 1,000 Btu Per Hour	110 F Rise: Equivalent Sq. Ft. 240 Btu Radiation	120 F Rise: 1,000 Btu Per Hour	120 F Rise: Equivalent Sq. Ft. 240 Btu Radiation	130 F Rise: 1,000 Btu Per Hour	130 F Rise: Equivalent Sq. Ft. 240 Btu Radiation	140 F Rise: 1,000 Btu Per Hour	140 F Rise: Equivalent Sq. Ft. 240 Btu Radiation	150 F Rise: 1,000 Btu Per Hour	150 F Rise: Equivalent Sq. Ft. 240 Btu Radiation
5	4.80	20	5.28	22	5.76	24	6.24	26	6.72	28	7.20	30
10	9.60	40	10.56	44	11.52	48	12.48	52	13.44	56	14.40	60
20	19.20	80	21.12	88	23.04	96	24.96	104	26.88	112	28.80	120
30	28.80	120	31.68	132	34.56	144	37.44	156	40.32	168	43.20	180
40	38.40	160	42.24	176	46.08	192	49.92	208	53.76	224	57.60	240
50	48.00	200	52.80	220	57.60	240	62.40	260	67.20	280	72.00	300
60	57.60	240	63.36	264	69.12	288	74.88	312	80.64	336	86.40	360
70	67.20	280	73.92	308	80.64	336	87.36	364	94.08	392	100.8	420
80	76.80	320	84.48	352	92.16	384	99.84	416	107.5	448	115.2	480
90	86.40	360	95.04	396	103.7	432	112.3	468	121.0	504	129.6	540
100	96.00	400	105.6	440	115.2	480	124.8	520	134.4	560	144.0	600
120	115.2	480	126.7	528	138.2	576	149.8	624	161.3	672	172.8	720
140	134.4	560	147.8	616	161.3	672	174.7	728	188.2	784	201.6	840
160	153.6	640	169.0	704	184.3	768	199.7	832	215.0	896	230.4	960
180	172.8	720	190.1	792	207.4	864	224.6	936	241.9	1008	259.2	1080
200	192.0	800	211.2	880	230.4	960	249.6	1040	268.8	1120	288.0	1200
250	240.0	1000	264.0	1100	288.0	1200	312.0	1300	336.0	1400	360.0	1500
300	288.0	1200	316.8	1320	345.6	1440	374.4	1560	403.2	1680	432.0	1800
400	384.0	1600	422.4	1760	460.8	1920	499.2	2080	537.6	2240	576.0	2400
500	480.0	2000	528.0	2200	576.0	2400	624.0	2600	672.0	2800	720.0	3000

[a] Table is computed for water having a density of 8 1/3 lb. per gal. and a specific heat of one Btu per F. Loads are based on a boiler tax equal to 4 sq. ft. of 240-Btu steam radiation for each gallon of water heated per hour through 100 F, computed as follows:

Heat required to raise water temperature = 8 1/3 × 100 = 833 Btu/hr. = 3.47 sq. ft steam radiation per gal.

Heat lost by radiation from storage tank and circulating piping = 127 Btu/hr. = 0.53

Total..... 960 Btu/hr. 4.00

The allowance for radiation loss from storage tank and circulating piping represents approximately 15 per cent of the heat required to raise the water temperature.

Weight per Lineal Foot of Standard Weight and O. D. Steel and Wrought Iron Pipe with Plain Ends[a]

Nominal Size Inches	Thickness Inches	Metal Weight Per Ft. Pounds	Water Weight Per Ft. Pounds	Nominal Size Inches	Thickness Inches	Metal Weight Per Ft. Pounds	Water Weight Per Ft. Pounds
⅛	0.109	0.850	0.13	5	0.258	14.617	8.67
¼	0.113	1.130	0.23	6	0.280	18.974	12.51
1	0.133	1.678	0.37	8	0.322	28.554	21.68
1¼	0.140	2.272	0.65	10	0.365	40.483	34.19
1½	0.145	2.717	0.88	12	0.375	49.562	48.94
2	0.154	3.652	1.45	14 O.D.	0.375	54.568	59.78
2½	0.203	5.793	2.07	16 O.D.	0.375	62.579	79.18
3	0.216	7.575	3.19	18 O.D.	0.409	76.840	100.5
3½	0.226	9.109	4.29	20 O.D.	0.409	85.577	124.8
4	0.237	10.79	5.50	24 O.D.	0.4375	110.10	181.0

[a] The specific heats in Btu per lb. per F are as follows: steel = 0.117; wrought iron = 0.114; cast iron = 0.13; water = 1.00. Density of water is 62.4 lb. per cu. ft.

The weight of couplings, flanges, fittings and valves runs about 50% that of the pipe metal for average jobs with a mixture of flanged and screwed joints. In welded jobs, count welding fittings as pipe and add about 10% for the weight of valves, flanges and flanged fittings.

Approximate Weight in Lb. of 125-Lb. Standard Cast Iron Screwed Fittings

Nominal Pipe Size, In.	90° Ell	45° Ell	Tee	Cross	Y Bend	Union[a]	Reducer 1 Size	Bushing, 1 Size	Cap	Plug, Square Head Regular	Plug, Square Head Solid
⅛	0.15	0.15	0.25	0.40	.....	0.20	.....	0.03	.....	0.03	.....
¼	0.25	0.20	0.35	0.40	0.60	0.30	.....	0.04	.....	0.06	.....
⅜	0.40	0.35	0.55	0.70	0.60	0.40	.....	0.06	.....	0.08	0.10
½	0.65	0.55	0.85	1.00	1.00	0.60	.....	0.12	.....	0.15	0.20
1	1.00	0.85	1.50	1.75	1.75	1.00	.....	0.20	.....	0.20	0.30
1¼	1.50	1.25	2.00	2.50	2.50	1.25	1.25	0.35	1.00	0.35	0.55
1½	2.00	2.00	2.75	3.50	3.50	1.75	1.75	0.45	1.50	0.50	0.75
2	3.00	2.75	4.25	5.25	5.25	2.75	2.25	0.70	2.00	0.80	1.25
2½	4.75	4.75	6.50	8.00	8.50	4.50	3.00	1.25	2.75	1.25	2.00
3	7.25	6.50	9.50	11.00	12.00	6.00	4.75	1.75	4.50	2.00	3.00
3½	9.50	8.50	14.00	16.00	17.00	9.75	6.25	2.50	5.75	2.75	4.00
4	12.00	11.00	18.00	21.00	24.00	13.00	8.00	2.75	6.25	3.25	5.50
5	22.00	18.00	28.00	32.00	41.00	26.00	13.00	4.25	11.00	5.25	10.00
6	30.00	27.00	40.00	45.00	57.00	40.00	19.00	7.25	16.00	7.50	14.00
8	62.00	44.00	79.00	88.00	121.0	50.00	31.00	11.00	31.00	16.00	27.00
10	116.0	88.00	154.0	170.0	252.0	80.00	56.00	21.00	50.00	26.00	51.00
12	178.0	126.0	230.0	271.0	384.0	120.0	83.00	31.00	80.00	41.00	75.00

[a] Std. weight malleable iron ground joint type up to and including 4-inch; cast iron flanged union with bolts 5 in. and larger.

Typical Values for Sq. Ft. of Boiler Heating Surface per Sq. Ft. of Grate Area

Boiler Heating Surface Sq. Ft.	Sq. Ft. Heating Surface Per Sq. Ft. Grate Area	
	Cast-Iron Sectional	Steel Portable Fire-Box Type
15—25	10—12	.....
25—50	10—12	15—17
50—100	10—12	15—17
100—500	11—16	20—30
500—1000	16—25	25—35
1000—3000	.....	35—55

Practical Combustion Rates for Relatively Small Coal-Fired Heating Boilers Operating on Natural Draft of from ¼ In. to ½ In. Water[a]

Sq. Ft. Grate	Kind of Coal	Lb. of Coal Per Sq. Ft. Grate Per Hr.
Up to 4	..No. 1 Buckwheat Anthracite..	3
5 to 9	..No. 1 Buckwheat Anthracite..	3½
10 to 14	..No. 1 Buckwheat Anthracite..	4
15 to 19	..No. 1 Buckwheat Anthracite..	4½
20 to 25	..No. 1 Buckwheat Anthracite..	5
Up to 9	.....Anthracite Pea.....	5
10 to 19	.....Anthracite Pea.....	5½
20 to 25	.....Anthracite Pea.....	6
Up to 4	...Anthracite Nut and Larger...	5
5 to 9	...Anthracite Nut and Larger...	6
10 to 14	...Anthracite Nut and Larger...	7
15 to 19	...Anthracite Nut and Larger...	8
20 to 25	...Anthracite Nut and Larger...	9
Up to 4	.....Bituminous.....	4
5 to 14	.....Bituminous.....	7
15 and above	.....Bituminous.....	10

[a] Steel boilers usually have higher combustion rates for grate areas exceeding 15 sq. ft. than those indicated in this table.

Gas-Fired Boiler Selection Factors

Multiply Installed Radiation by Factor to Find Minimum Boiler Size

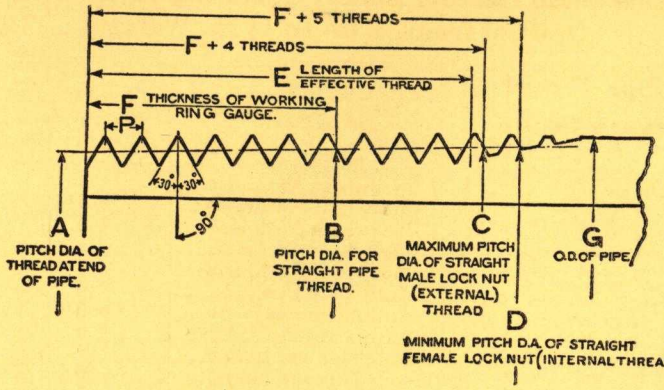
Installed Radiation (Either Steam or Hot Water)	Factor	Installed Radiation (Either Steam or Hot Water)	Factor
100	1.56	2200	1.445
200	1.56	2300	1.443
300	1.56	2400	1.439
400	1.56	2500	1.437
500	1.56	2600	1.435
600	1.552	2700	1.432
700	1.545	2800	1.43
800	1.537	2900	1.427
900	1.53	3000	1.424
1000	1.523	3100	1.422
1100	1.515	3200	1.42
1200	1.508	3300	1.417
1300	1.501	3400	1.414
1400	1.494	3500	1.412
1500	1.486	3600	1.409
1600	1.478	3700	1.407
1700	1.472	3800	1.405
1800	1.464	3900	1.402
1900	1.457	4000 and over	1.40
2000	1.45		
2100	1.447		

Among the items affecting the selection of the right size heating boiler are:

(1) Amount of connected (standing) radiation.
(2) Heat loss from bare and covered piping in supply and returns.
(3) Domestic hot water requirements.
(4) Satisfactory warming-up period from a cold or partially cold condition of the entire system.
(5) Efficiency with hard or soft coal, gas or oil-firing as the case may be.
(6) Grate area with hand-fired coal, or fuel burning rate with stokers, oil or gas.
(7) Combustion space in the furance.
(8) Type of heat liberation, whether continuous or intermittent or a combination of both.

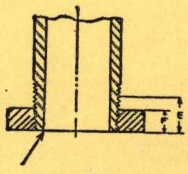
American Standard Dimensions of Taper Pipe Threads

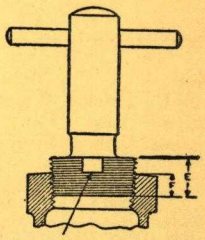
(American Standards Association)



Tolerance for Male Threads

One Turn Large (max. size), One Turn Small (min. size), from face of Ring Gauge.





Tolerance for Female Threads

One Turn Large (max. size), One Turn Small (min. size), from Gauging Notch.

A equals G — (0.05G + 1.1)P
B equals A + .0625F
C equals B + (4P X .0625)
D equals B + (5P X .0625)
E equals (0.8G + 6.8)P

F equals thickness of Working Ring Gauge.
P equals Pitch
Total Taper ¾ inch per foot.
Depth of Thread 0.8P.

Size	A	B	C	D	E	F	G	Depth of Thread	Pitch of Thread	Threads per Inch
⅛	.36351	.37476	.38402	.38633	.2638	.180	.405	.02963	.03704	27
¼	.47739	.48989	.50378	.50725	.4018	.200	.540	.04444	.05556	18
⅜	.61201	.62701	.64090	.64437	.4078	.240	.675	.04444	.05556	18
½	.75843	.77843	.79628	.80075	.5337	.320	.840	.05714	.07143	14
¾	.96768	.98886	1.00672	1.01118	.5457	.339	1.050	.05714	.07143	14
1	1.21363	1.23863	1.26037	1.26580	.6828	.400	1.315	.06956	.08696	11½
1¼	1.55713	1.58338	1.60512	1.61055	.7068	.420	1.660	.06956	.08696	11½
1½	1.79609	1.82234	1.84407	1.84951	.7235	.420	1.900	.09656	.08696	11½
2	2.26902	2.29627	2.31801	2.32344	.7565	.436	2.375	.06956	.08696	11½
2½	2.71953	2.76216	2.79341	2.80122	1.1375	.682	2.875	.100	.12500	8
3	3.34063	3.38850	3.41975	3.42756	1.2000	.766	3.500	.100	.12500	8
3½	3.83750	3.88881	3.92006	3.92787	1.2500	.821	4.000	.100	.12500	8
4	4.33438	4.38713	4.41838	4.42619	1.3000	.844	4.500	.100	.12500	8
4½	4.83125	4.88594	4.91719	4.92500	1.3500	.875	5.000	.100	.12500	8
5	5.39073	5.44929	5.48054	5.48836	1.4063	.937	5.563	.100	.12500	8
6	6.44609	6.50597	6.53722	6.54503	1.5125	.958	6.625	.100	.12500	8
7	7.43984	7.50234	7.53359	7.54141	1.6125	1.000	7.625	.100	.12500	8
8	8.43359	8.50003	8.53128	8.53909	1.7125	1.063	8.625	.100	.12500	8
9	9.42734	9.49797	9.52922	9.53703	1.8125	1.130	9.625	.100	.12500	8
10	10.54531	10.62094	10.65219	10.66000	1.9250	1.210	10.750	.100	.12500	8
11	11.53906	11.61938	11.65063	11.65844	2.0250	1.285	11.750	.100	.12500	8
12	12.53281	12.61781	12.64906	12.65688	2.1250	1.360	12.750	.100	.12500	8
14 O. D.	13.77500	13.87262	13.90387	13.91168	2.250	1.562	14.00	.100	.12500	8
15 O. D.	14.76875	14.87419	14.90543	14.91324	2.350	1.687	15.00	.100	.12500	8
16 O. D.	15.76250	15.87575	15.90700	15.91481	2.450	1.812	16.00	.100	.12500	8
17 O. D.	16.75625	16.87500	16.90625	16.91406	2.550	1.900	17.00	.100	.12500	8
18 O. D.	17.75000	17.87500	17.90625	17.91406	2.650	2.000	18.00	.100	.12500	8
20 O. D.	19.73750	19.87031	19.90156	19.90937	2.850	2.125	20.00	.100	.12500	8
22 O. D.	21.72500	21.86562	21.89687	21.90468	3.050	2.250	22.00	.100	.12500	8
24 O. D.	23.71250	23.86094	23.89218	23.89999	3.250	2.375	24.00	.100	.12500	8

Whitworth Standard-German Pipe Threads

(Water tight threads) Iron or Steel Pipe

(Courtesy American Standards Association)

Nominal Diameter	Thread Diameter	Material Diameter	Depth of Thread	Curvation	Thickness of Thread	Inclination of Thread	No. of Rev. per Inch
Inches	Millimeters						
⅛	9,729	8,567	581	125	9,148	907	28
¼	13,158	11,446	856	184	12,302	1,337	19
⅜	16,663	14,951	856	184	15,807	1,337	19
½	20,956	18,632	1,162	249	19,794	1,814	14
⅝	22,912	20,588	1,162	249	21,750	1,814	14
¾	26,442	24,119	1,162	249	25,281	1,814	14
⅞	30,202	27,878	1,162	249	29,040	1,814	14
1	33,250	30,293	1,479	317	31,771	2,309	11
(1⅛)	37,898	34,941	1,479	317	36,420	2,309	11
1¼	41,912	38,954	1,479	317	40,433	2,309	11
(1⅜)	44,325	41,367	1,479	317	42,846	2,309	11
1½	47,805	44,847	1,479	317	46,326	2,309	11
1¾	53,748	50,791	1,479	317	52,270	2,309	11
2	59,616	56,659	1,479	317	58,137	2,309	11
2¼	65,712	62,755	1,479	317	64,234	2,309	11
2½	75,187	72,230	1,479	317	73,708	2,309	11
2¾	81,537	78,580	1,479	317	80,058	2,309	11
3	87,887	84,930	1,479	317	86,409	2,309	11
3¼	93,984	91,026	1,479	317	92,505	2,309	11

Nominal Diameter	Thread Diameter	Material Diameter	Depth of Thread	Curvation	Thickness of Thread	Inclination of Thread	No. of Rev. per Inch
Inches	Millimeters						
3½	100,334	97,376	1,479	317	98,855	2,309	11
3¾	106,684	103,727	1,479	317	105,205	2,309	11
4	113,034	110,077	1,479	317	111,556	2,309	11
4½	125,735	122,777	1,479	317	124,256	2,309	11
5	138,435	135,478	1,479	317	136,957	2,309	11
5½	151,136	148,178	1,479	317	149,657	2,309	11
6	163,836	160,879	1,479	317	162,357	2,309	11
7	189,237	185,984	1,627	349	187,611	2,540	10
8	214,638	211,385	1,627	349	213,012	2,540	10
9	240,039	236,786	1,627	349	238,412	2,540	10
10	265,440	262,187	1,627	349	263,813	2,540	10
11	290,841	286,775	2,033	436	288,808	3,175	8
12	316,242	312,176	2,033	436	314,209	3,175	8
13	347,485	343,419	2,033	436	345,452	3,175	8
14	372,886	368,820	2,033	436	370,853	3,175	8
15	398,287	394,221	2,033	436	396,254	3,175	8
16	423,688	419,622	2,033	436	421,655	3,175	8
17	449,089	445,023	2,033	436	447,056	3,175	8
18	474,490	470,424	2,033	436	472,457	3,175	8

Note—Diameters between parentheses to be used only for copper pipe and high pressure pipe. Theoretical pipe diameters given. It is recommended that tools be made heavy or light according to pipe or nipple used. Based on British standard (1918) except instead of 16⅜ the British use, this is figured on a 20 basis—calculate 25.40095 millimeters per inch.

Translated from the German Dinorm 259, Whitworth—Rshrgewinde ohne spetzenspiel by W. Holesone. This standard as of April 1, 1922.

British Standard Pipe Threads

Iron or Steel Pipes or Tubes
(Courtesy American Standards Association)

Nominal Bore of Tube	Approx. Outside Diameter of Tube	Gauge Diameter *	Cone Diameter Same Distance from End as Gauge Diameter ***	Depth of Thread	No. of Thds. per Inch	Length of Thread		Distance of Guage Diameter from Pipe End			Nominal Bore of Tube	Approx. Outside Diameter of Tube	Gauge Diameter *	Cone Diameter Same Distance from End as Gauge Diameter ***	Depth of Thread	No. of Thds. per Inch	Length of Thread		Distance of Guage Diameter from Pipe End		
						On Pipe End Min.	In Coupler Min.	Standard	Maximum	Minimum							On Pipe End Min.	In Coupler Min.	Standard	Maximum	Minimum
	Inches											Inches									
1/8	13/32	0.383	0.337	.0230	28	3/8	3/4	5/32	.18	.13	3 3/4	4 1/4	4.200	4.084	.0580	11	1 1/2	3	7/8	1.02	.73
1/4	17/32	0.518	0.451	.0335	19	7/16	7/8	3/16	.22	.16	4	4 1/2	4.450	4.334	.0580	11	1 5/8	3 1/4	1	1.17	.83
3/8	11/16	0.656	0.589	.0335	19	1/2	1	1/4	.29	.21	4 1/2	5	4.950	4.834	.0580	11	1 5/8	3 1/4	1	1.17	.83
1/2	21/32	0.825	0.734	.0455	14	5/8	1 1/4	1/4	.29	.21	5	5 1/2	5.450	5.334	.0580	11	1 3/4	3 1/2	1 1/8	1.31	.94
5/8	15/16	0.902	0.811	.0455	14	5/8	1 1/4	1/4	.29	.21	5 1/2	6	5.950	5.834	.0580	11	1 7/8	3 3/4	1 1/4	1.46	1.04
3/4	1 1/16	1.041	0.950	.0455	14	3/4	1 1/2	3/8	.44	.31	6	6 1/2	6.450	6.334	.0580	11	2	4	1 3/8	1.60	1.15
7/8	1 7/32	1.189	1.098	.0455	14	3/4	1 1/2	3/8	.44	.31	7	7 1/2	7.450	7.322	.0640	10	2 1/8	4 1/4	1 3/8	1.60	1.15
1	1 11/32	1.309	1.193	.0580	11	7/8	1 3/4	3/8	.44	.31	8	8 1/2	8.450	8.322	.0640	10	2 1/4	4 1/2	1 1/2	1.75	1.25
1 1/4	1 11/16	1.650	1.534	.0580	11	1	2	1/2	.58	.42	9	9 1/2	9.450	9.322	.0640	10	2 1/4	4 1/2	1 1/2	1.75	1.25
1 1/2	1 29/32	1.882	1.766	.0580	11	1	2	1/2	.58	.42	10	10 1/2	10.450	10.322	.0640	10	2 3/8	4 3/4	1 5/8	1.90	1.35
1 3/4	2 5/32	2.116	2.000	.0580	11	1 1/8	2 1/4	5/8	.73	.52	11	11 1/2	11.450	11.290	.0800	8	2 1/2	5	1 5/8	1.90	1.35
2	2 3/8	2.347	2.231	.0580	11	1 1/8	2 1/4	5/8	.73	.52	12	12 1/2	12.450	12.290	.0800	8	2 1/2	5	1 5/8	1.90	1.35
2 1/4	2 5/8	2.587	2.471	.0580	11	1 1/4	2 1/2	11/16	.80	.57	13	13 3/4	13.680	13.520	.0800	8	2 5/8	5 1/4	1 5/8	1.90	1.35
2 1/2	3	2.960	2.844	.0580	11	1 1/4	2 1/2	11/16	.80	.57	14	14 3/4	14.680	14.520	.0800	8	2 3/4	5 1/2	1 3/4	2.04	1.46
2 3/4	3 1/4	3.210	3.094	.0580	11	1 3/8	2 3/4	13/16	.95	.68	15	15 3/4	15.680	15.520	.0800	8	2 3/4	5 1/2	1 3/4	2.04	1.46
3	3 1/2	3.460	3.344	.0580	11	1 3/8	2 3/4	13/16	.95	.68	16	16 3/4	16.680	16.520	.0800	8	2 7/8	5 3/4	1 7/8	2.19	1.56
3 1/4	3 3/4	3.700	3.584	.0580	11	1 1/2	3	7/8	1.02	.73	17	17 3/4	17.680	17.520	.0800	8	3	6	2	2.33	1.67
3 1/2	4	3.950	3.834	.0580	11	1 1/2	3	7/8	1.02	.73	18	18 3/4	18.680	18.520	.0800	8	3	6	2	2.33	1.67

Notes:
*Gauge diameter is the full diameter of the standard male parallel screw gauge which the parallel coupler, to be used with a pipe of that size, is supposed to fit.

***Cone diameter is twice the minimum radius of a screw, measured at right angles to its axis.

Adopted 1909—Reprinted 1918 by British Engineering Standards Committee.

British Standard Specification for Screw Threads

For Copper Tubes and Connections
(Courtesy American Standards Association)

Nominal Bore of Tube	Outside Diameter		Gauge Diameter	No. of Threads per Inch	Depth of Thread	Cone Diameter	Lgth. of Thread	Inside Diameter	Thickness of Tube			Std. Wt. in Lbs. Per Lineal Foot	Max. Wt. in Lbs. Per Lineal Foot	Inside Diameter	Thickness of Tube			Std. Wt. in Lbs. Per Lineal Foot	Max. Wt. in Lbs. Per Lineal Foot
	Standard	Tolerance							Swg.	Decimals	Minimum				Swg.	Decimals	Minimum		
Inch	Inches	Inches	Inches		Inches	Inches	Inches	Inches		Inches	Inches	Lbs.	Lbs.	Inches		Inches	Inches	Lbs.	Lbs.
LOW PRESSURES—For working pressures up to 50 pounds or a hydraulic head of 120 feet. **MEDIUM PRESSURES**—For working pressures up to 125 pounds per square inch or a hydraulic head of 300 feet.								**LOW PRESSURES**						**MEDIUM PRESSURES**					
1/8	.253	.003	.248	28	.0230	.202	5/16	.125	16	.064	.056	.15	.157	.125	16	.064	.056	.15	.157
1/4	.394	.003	.389	20	.0320	.325	3/8	.25	15	.072	.064	.28	.294	.234	14	.080	.072	.29	.304
3/8	.519	.003	.514	20	.0320	.450	1/2	.375	15	.072	.064	.39	.409	.359	14	.080	.072	.41	.430
1/2	.644	.003	.639	20	.0320	.575	1/2	.5	15	.072	.064	.50	.525	.484	14	.080	.072	.53	.556
5/8	.769	.004	.764	20	.0320	.700	5/8	.625	15	.072	.064	.61	.640	.609	14	.080	.072	.67	.703
3/4	.894	.004	.889	20	.0320	.825	5/8	.75	15	.072	.064	.72	.756	.710	13	.092	.080	.89	.934
7/8	1.019	.004	1.014	20	.0320	.950	3/4	.875	15	.072	.064	.82	.861	.835	13	.092	.080	1.03	1.08
1	1.160	.004	1.155	20	.0320	1.091	3/4	1.00	14	.080	.072	1.04	1.09	.952	12	.104	.092	1.33	1.40
1 1/4	1.410	.004	1.405	20	.0320	1.341	7/8	1.25	14	.080	.072	1.29	1.35	1.202	12	.104	.092	1.64	1.72
1 1/2	1.660	.004	1.655	20	.0320	1.591	7/8	1.5	14	.080	.072	1.53	1.6	1.452	12	.104	.092	1.96	2.06
1 3/4	1.934	.004	1.929	16	.0400	1.849	1	1.75	13	.092	.080	2.05	2.15	1.726	12	.104	.092	2.30	2.41
2	2.184	.005	2.179	16	.0400	2.099	1	2.00	13	.092	.080	2.33	2.45	1.976	12	.104	.092	2.61	2.74
2 1/4	2.434	.005	2.429	16	.0400	2.349	1	2.25	13	.092	.080	2.61	2.74	2.202	11	.116	.104	3.25	3.41
2 1/2	2.684	.005	2.679	16	.0400	2.599	1	2.5	13	.092	.080	2.88	3.02	2.452	11	.116	.104	3.60	3.78
2 3/4	2.934	.005	2.929	16	.0400	2.849	1	2.75	13	.092	.080	3.16	3.32	2.678	10	.128	.116	4.34	4.56
3	3.208	.005	3.203	16	.0400	3.123	1 1/8	3.00	12	1.04	.092	3.90	4.09	2.952	10	.128	.116	4.77	5.01
3 1/4	3.458	.005	3.453	16	.0400	3.373	1 1/8	3.25	12	1.04	.092	4.22	4.43	3.202	10	.128	.116	5.16	5.42
3 1/2	3.732	.006	3.727	16	.0400	3.647	1 1/8	3.5	11	.116	.104	5.07	5.32	3.444	9	.144	.128	6.25	6.56
3 3/4	3.982	.006	3.977	16	.0400	3.897	1 1/8	3.75	11	.116	.104	5.42	5.69	3.694	9	.144	.128	6.68	7.01
4	4.256	.006	4.251	16	.0400	4.171	1 1/4	4.00	10	.128	.116	6.39	6.71	3.936	8	.160	.144	7.93	8.33

Notes—Whitworth form of thread shall be employed. The angle between the slopes, measured in the axial plane, shall be 55 degrees. The screw at the pipe end and at all connections shall be conical, being coned 1/16 inch measured on the diameter per inch in length.

Table of Standard Dimensions of Wrought Iron Pipe

Reprinted by permission from The Ideal Fitter, published by American Radiator Co.

Diameter			Thickness	Circumference		Transverse Areas			Length of Pipe per Sq. Ft. of		Length of Pipe Containing One Cubic Foot	Nominal Weight per Foot	Number of Threads per Inch of Screw	Tap Drill
Nominal Internal	Actual External	Actual Internal		External	Internal	External	Internal	Metal	External Surface	Internal Surface				
Inches	Inches	Inches	Inches	Inches	Inches	Sq. In.	Sq. In.	Sq. In.	Feet	Feet	Feet	Lbs.		
1/8	0.405	0.27	0.068	1.272	0.848	0.129	0.0573	0.0717	9.44	14.15	2513.	0.241	27	11/32
1/4	0.54	0.364	0.088	1.696	1.144	0.229	0.1041	0.1249	7.075	10.49	1383.3	0.42	18	7/16
3/8	0.675	0.494	0.091	2.121	1.552	0.358	0.1917	0.1663	5.657	7.73	751.2	0.559	18	9/16
1/2	0.84	0.623	0.109	2.639	1.957	0.554	0.3048	0.2492	4.547	6.13	472.4	0.837	14	11/16
3/4	1.05	0.824	0.113	3.299	2.589	0.866	0.5333	0.3327	3.637	4.635	270.	1.115	14	15/16
1	1.315	1.048	0.134	4.131	3.292	1.358	0.8626	0.4954	2.904	3.645	166.9	1.668	11½	1 3/16
1¼	1.66	1.38	0.14	5.215	4.335	2.164	1.496	0.668	2.301	2.768	96.25	2.244	11½	1 1/2
1½	1.9	1.611	0.145	5.969	5.061	2.835	2.038	0.797	2.01	2.371	70.66	2.678	11½	1 3/4
2	2.375	2.067	0.154	7.461	6.494	4.43	3.356	1.074	1.608	1.848	42.91	3.609	11½	2 1/4
2½	2.875	2.468	0.204	9.032	7.753	6.492	4.784	1.708	1.328	1.547	30.1	5.739	8	2 11/16
3	3.5	3.067	0.217	10.996	9.636	9.621	7.388	2.243	1.091	1.245	19.5	7.536	8	3 5/16
3½	4.	3.548	0.226	12.566	11.146	12.566	9.887	2.679	0.955	1.077	14.57	9.001	8	3 13/16
4	4.5	4.026	0.237	14.137	12.648	15.904	12.73	3.174	0.849	0.949	11.31	10.665	8	4 5/16
4½	5.	4.508	0.246	15.708	14.162	19.635	15.961	3.674	0.764	0.848	9.02	12.34	8	
5	5.563	5.045	0.259	17.477	15.849	24.306	19.99	4.316	0.687	0.757	7.2	14.502	8	
6	6.625	6.065	0.28	20.813	19.054	34.472	28.888	5.584	0.577	0.63	4.98	18.762	8	
7	7.625	7.023	0.301	23.955	22.063	45.664	38.738	6.926	0.501	0.544	3.72	23.271	8	
8	8.625	7.982	0.322	27.096	25.076	58.426	50.04	8.386	0.443	0.478	2.88	28.177	8	
9	9.625	8.937	0.344	30.238	28.076	72.76	62.73	10.03	0.397	0.427	2.29	33.701	8	
10	10.75	10.019	0.366	33.772	31.477	90.763	78.839	11.924	0.355	0.382	1.82	40.065	8	

American Standard for Cast Iron Pipe Flanges and Flanged Fittings

All Sizes for maximum working saturated steam pressure of 125 lb. per sq. in. (Gage)-B16a-1928.

Abstracted by permission of American Standards Association. (Sponsors: Heating and Piping Contractors National Association, Manufacturers' Standardization Society of Valve and Fillings Industry and American Society of Mechanical Engineers. (Templates for Drilling)

Nominal Pipe Size	Diameter of Flange	Thickness of Flange, Minimum	Dia. of Bolt Circle	Number of Bolts	Diameter of Bolts	Dia. of Drilled Bolt Holes	Length of Bolts	Length of Bolt-Stud with Two Nuts	Total Effective Area Bolt Metal	Stress lbs. per Square In. Bolt Metal	Size of Ring Gasket
1	4¼	7/16	3⅛	4	½	5/8	1½	....	0.504	1,340	1 X 2⅝
1¼	4⅝	7/16	3½	4	½	5/8	1½	....	0.504	1,755	1¼ X 3
1½	5	9/16	3 7/8	4	½	5/8	1¾	....	0.504	2,215	1½ X 3⅜
2	6	5/8	4¾	4	5/8	¾	2	....	0.808	2,065	2 X 4⅛
2½	7	11/16	5½	4	5/8	¾	2¼	....	0.808	2,885	2½ X 4⅞
3	7½	¾	6	4	5/8	¾	2¼	....	0.808	3,510	3 X 5⅜
3½	8½	15/16	7	8	5/8	¾	2½	....	1.616	2,410	3½ X 6⅜
4	9	15/16	7½	8	5/8	¾	2¾	....	1.616	2,870	4 X 6⅞
5	10	15/16	8½	8	¾	⅞	2¾	....	2.416	2,440	5 X 7⅝
6	11	1	9½	8	¾	⅞	3	....	2.416	3,110	6 X 8¾
8	13½	1 1/8	11¾	8	¾	⅞	3¼	....	2.416	4,915	8 X 11
10	16	1 3/16	14¼	12	⅞	1	3½	....	5.04	3,485	10 X 13⅜
12	19	1¼	17	12	⅞	1	3½	....	5.04	5,065	12 X 16⅛
14 O.D.	21	1⅜	18¾	12	1	1⅛	4	....	6.60	4,685	14 X 17¾
16 O.D.	23½	1 7/16	21¼	16	1	1⅛	4¼	....	8.80	4,575	16 X 20¼
18 O.D.	25	1 9/16	22¾	16	1⅛	1¼	4½	....	11.10	4,135	18 X 21⅝
20 O.D.	27½	1 11/16	25	20	1⅛	1¼	4¾	....	13.88	4,030	20 X 23⅞
24 O.D.	32	1⅞	29½	20	1¼	1⅜	5¼	....	17.86	4,385	24 X 28¼
30 O.D.	38¾	2⅛	36	28	1¼	1⅜	5¾	....	25.00	4,700	30 X 34⅝
36 O.D.	46	2⅜	42¾	32	1½	1⅝	6½	....	41.41	4,035	36 X 41¼
42 O.D.	53	2⅝	49½	36	1½	1⅝	7¼	9½	46.57	4,810	42 X 47⅞
48 O.D.	59½	2¾	56	44	1½	1⅝	7½	9½	56.93	5,200	48 X 54⅜
54 O.D.	66¼	3	62¾	44	1¾	2	8¼	10½	76.82	4,775	54 X 61
60 O.D.	73	3 1/16	69¼	52	1¾	2	8½	11	90.79	4,925	60 X 67½
72 O.D.	86½	3½	82½	60	1¾	2	9½	12	104.70	6,150	72 X 80⅝
84 O.D.	99¾	3 7/8	95½	64	2	2¼	10½	13	147.33	5,825	84 X 93½
96 O.D.	113¼	4¼	108½	68	2¼	2½	11½	14½	205.56	5,415	96 X 106¼

All dimensions given in inches.

Sizes of Standard Pipe Covering

(Reprinted by permission from Kent's Mechanical Engineers' Handbook, Tenth Edition, published by John Wiley & Sons, Inc.)

Name of Covering	Standard	1½-Inch	2-Inch	Double Standard	Double 1½-Inch
Pipe Size, Inches	Thickness, Inches	Thickness, Inches	Thickness, Inches	Total Thickness, Inches	Total Thickness, Inches
½	7/8	1½	2	1¾	3
¾	7/8	1½	2	1¾	3
1	7/8	1½	2	1¾	3
1¼	7/8	1½	2	1¾	3
1½	7/8	1½	2	1¾	3
2	1 1/32	1½	2	2 1/16	3
2½	1 1/32	1½	2	2 1/16	3
3	1 1/32	1½	2	2 1/16	3
3½	1 1/32	1½	2	2 1/16	3
4	1⅛	1½	2	2¼	3
4½	1⅛	1½	2	2¼	3
5	1⅛	1½	2	2¼	3
6	1⅛	1½	2	2¼	3
7	1¼	1½	2	2½	3
8	1¼	1½	2	2½	3
9	1¼	1½	2	2½	3
10	1¼	1½	2	2½	3
12 and larger	1½	1½	2	3	3

Dimensions and Weights of Seamless Brass and Copper Pipe

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(Iron Pipe Size)

Regular					Extra Heavy				
Standard Size	Diameter, Inches		Pounds per Foot*		Standard Size	Diameter, Inches		Pounds per Foot*	
	Outside	Inside	Brass	Copper		Outside	Inside	Brass	Copper
1/8	0.405	0.281	0.246	0.259	1/8	0.405	0.205	0.353	0.371
1/4	0.540	0.375	0.437	0.459	1/4	0.540	0.294	0.593	0.624
3/8	0.675	0.494	0.612	0.644	3/8	0.675	0.421	0.805	0.847
1/2	0.840	0.625	0.911	0.958	1/2	0.840	0.542	1.191	1.253
3/4	1.050	0.822	1.235	1.298	3/4	1.050	0.736	1.622	1.706
1	1.315	1.062	1.740	1.829	1	1.315	0.951	2.386	2.509
1¼	1.660	1.368	2.557	2.689	1¼	1.660	1.272	3.291	3.460
1½	1.900	1.600	3.037	3.193	1½	1.900	1.494	3.986	4.191
2	2.375	2.062	4.017	4.224	2	2.375	1.933	5.508	5.791
2½	2.875	2.500	5.830	6.130	2½	2.875	2.315	8.407	8.839
3	3.500	3.062	8.314	8.741	3	3.500	2.892	11.24	11.82
3½	4.000	3.500	10.85	11.41	3½	4.000	3.358	13.66	14.37
4	4.500	4.000	12.29	12.93	4	4.500	3.818	16.41	17.25
4½	5.000	4.500	13.74	14.44	4½	5.000	4.250	20.07	21.10
5	5.563	5.062	15.40	16.19	5	5.563	4.813	22.51	23.67
6	6.625	6.125	18.44	19.39	6	6.625	5.750	31.32	32.93
7	7.625	7.062	23.92	25.15	7	7.625	6.625	41.22	43.34
8	8.625	8.000	30.05	31.60	8	8.625	7.625	47.00	49.42
9	9.625	8.937	36.94	38.84					
10	10.750	10.019	43.91	46.17					

*These weights vary somewhat in practice.

Losses from Horizontal Bare Iron Steam Pipes per Lineal Foot per Hour

(Reprinted by permission from Kents' Mechanical Engineers' Handbook, Tenth Edition, published by John Wiley & Sons, Inc.)

(Air Temperature 70 degrees F. Coal taken as 13,000 B. T. U. per pound. Boiler efficiency 70%)

Gage Press.	Hot Water.	10 Lb.		80 Lb.		120 Lb.		160 Lb.		200 Lb.		200 Lb. 125° F. Sup.	
Pipe Temp.	180° F.	239° F.		324° F.		350° F.		370° F.		388° F.		488° F.	
Pipe Size, In.	B.T.U.	B.T.U.	Lb. Coal	B.T.U.	Lb. Coal	B.T.U.	Lb. Coal	B.T.U.	Lb. Coal	B.T.U.	Lb. Coal	B.T.U.	Lb. Coal
½	67	113	.012	198	.022	228	.025	254	.028	278	.031	425	.047
¾	80	137	.015	239	.026	277	.030	310	.034	336	.037	512	.056
1	97	164	.018	289	.032	330	.037	372	.041	407	.045	620	.067
1¼	118	203	.022	357	.039	411	.045	460	.051	502	.055	779	.085
1½	134	229	.025	403	.044	470	.052	525	.058	574	.063	885	.097
2	164	271	.030	495	.055	575	.063	643	.071	675	.071	1110	.121
2½	197	336	.037	590	.065	690	.075	770	.084	810	.089	1340	.145
3	231	416	.045	701	.077	815	.089	900	.099	1000	.110	1590	.174
3½	262	449	.049	800	.088	925	.101	1030	.113	1140	.125	1810	.198
4	292	500	.055	895	.098	1040	.114	1150	.126	1260	.138	2020	.222
4½	322	551	.060	985	.108	1140	.125	1270	.139	1400	.153	2220	.243
5	352	605	.067	1070	.118	1240	.136	1390	.152	1520	.167	2490	.273
6	414	716	.079	1270	.139	1480	.162	1650	.181	1820	.200	2900	.319
7	476	815	.089	1470	.161	1700	.186	1890	.207	2080	.228	3340	.365
8	555	920	.101	1640	.180	1910	.208	2140	.235	2320	.255	3760	.412
9	590	1030	.113	1830	.201	2130	.234	2380	.261	2610	.286	4130	.452
10	652	1110	.121	2030	.223	2360	.260	2640	.290	2910	.320	4520	.495
12	765	1330	.146	2390	.261	2800	.306	3120	.342	3530	.387	5400	.590
14	840	1460	.160	2630	.288	3060	.336	3400	.372	3740	.410	5900	.648
16	952	1650	.181	2970	.325	3460	.380	3840	.420	4300	.471	6650	.736
18	1060	1820	.200	3300	.361	3860	.425	4310	.474	4730	.518	7450	.816

Dimensions of Standard Weight Pipe

National Tube Co.

Size	Diameters Inches		Thickness	Weight per Foot Pounds		Threads per inch	Couplings			Circumference Inches		Transverse Area Square Inches			Length of Pipe in Feet per Sq. Ft.		Length of Pipe Containing 1 Cu. Ft.
	External	Internal		Plain ends	Threads and Couplings		Diameter	Length	Weight	External	Internal	External	Internal	Metal	External Surface	Internal Surface	
1/8	0.405	0.269	0.068	0.244	0.245	27	0.562	7/8	0.030	1.272	0.845	0.129	0.057	0.072	9.431	14.199	2533.775
1/4	0.540	0.364	0.088	0.424	0.425	18	0.685	1	0.044	1.696	1.144	0.229	0.104	0.125	7.073	10.493	1383.789
3/8	0.675	0.493	0.091	0.567	0.568	18	0.848	1 1/8	0.072	2.121	1.549	0.358	0.191	0.167	5.658	7.748	754.360
1/2	0.840	0.622	0.109	0.850	0.852	14	1.024	1 3/8	0.118	2.639	1.954	0.554	0.304	0.250	4.547	6.141	473.906
3/4	1.050	0.824	0.113	1.130	1.134	14	1.281	1 5/8	0.214	3.299	2.589	0.866	0.533	0.333	3.637	4.635	270.034
1	1.315	1.049	0.133	1.678	1.684	11 1/2	1.576	1 7/8	0.350	4.131	3.296	1.358	0.864	0.494	2.904	3.641	166.618
1 1/4	1.660	1.380	0.140	2.272	2.281	11 1/2	1.950	2 1/8	0.546	5.215	4.335	2.164	1.495	0.669	2.301	2.768	96.275
1 1/2	1.900	1.610	0.145	2.717	2.731	11 1/2	2.218	2 3/8	0.758	5.969	5.058	2.835	2.036	0.799	2.010	2.372	70.733
2	2.375	2.067	0.154	3.652	3.678	11 1/2	2.760	2 5/8	1.233	7.461	6.494	4.430	3.355	1.075	1.608	1.847	42.913
2 1/2	2.875	2.469	0.203	5.793	5.819	8	3.276	2 7/8	1.755	9.032	7.757	6.492	4.788	1.704	1.328	1.547	30.077
3	3.500	3.068	0.216	7.575	7.616	8	3.948	3 1/8	2.549	10.996	9.638	9.621	7.393	2.228	1.091	1.245	19.479
3 1/2	4.000	3.548	0.226	9.109	9.202	8	4.591	3 5/8	4.328	12.566	11.146	12.566	9.886	2.680	0.954	1.076	14.565
4	4.500	4.026	0.237	10.790	10.889	8	5.091	3 5/8	5.410	14.137	12.648	15.904	12.730	3.174	0.848	0.948	11.312
*4 1/2	5.000	4.506	0.247	12.538	12.642	8	5.591	3 5/8	5.984	15.708	14.156	19.635	15.947	3.688	0.763	0.847	9.030
5	5.563	5.047	0.258	14.617	14.810	8	6.296	4 1/8	9.158	17.477	15.856	24.306	20.006	4.300	0.686	0.756	7.198
6	6.625	6.065	0.280	18.974	19.195	8	7.358	4 1/8	10.823	20.813	19.054	34.472	28.891	5.581	0.576	0.629	4.984
*7	7.625	7.023	0.301	23.544	23.769	8	8.358	4 1/8	12.390	23.955	22.063	45.664	38.738	6.926	0.500	0.543	3.717
*8	8.625	8.071	0.277	24.696	25.000	8	9.358	4 5/8	15.843	27.096	25.356	58.426	51.161	7.265	0.443	0.473	2.815
8	8.625	7.981	0.322	28.554	28.809	8	9.358	4 5/8	15.843	27.096	25.073	58.426	50.027	8.399	0.443	0.478	2.878
*9	9.625	8.941	0.342	33.907	34.188	8	10.358	5 1/8	19.752	30.238	28.089	72.760	62.786	9.974	0.396	0.427	2.294
*10	10.750	10.192	0.279	31.201	32.000	8	11.721	6 1/8	33.923	33.772	32.019	90.763	81.585	9.178	0.355	0.374	1.765
*10	10.750	10.136	0.307	34.240	35.000	8	11.721	6 1/8	33.923	33.772	31.843	90.763	80.691	10.072	0.355	0.376	1.785
10	10.750	10.020	0.365	40.483	41.132	8	11.721	6 1/8	33.923	33.772	31.479	90.763	78.855	11.908	0.355	0.381	1.826
*11	11.750	11.000	0.375	45.557	46.247	8	12.721	6 1/8	36.970	36.914	34.558	108.434	95.033	13.401	0.325	0.347	1.515
*12	12.750	12.090	0.330	43.773	45.000	8	13.958	6 1/8	48.266	40.055	37.982	127.676	114.800	12.876	0.299	0.315	1.254
12	12.750	12.000	0.375	49.562	50.706	8	13.958	6 1/8	48.266	40.055	37.699	127.676	113.097	14.579	0.299	0.318	1.273
14 O. D.	14.000	13.250	0.375	54.568	57.000	8	15.446	7 1/8	72.280	43.982	41.626	153.938	137.886	16.052	0.272	0.288	1.044
15 O. D.	15.000	14.250	0.375	58.573	60.375	8	16.446	6 1/8	77.221	47.124	44.768	176.715	159.485	17.230	0.254	0.268	0.903
16 O. D.	16.000	15.250	0.375	62.579	64.500	8	17.446	6 1/8	82.162	50.265	47.909	201.062	182.654	18.408	0.238	0.250	0.788
17 O. D.	17.000	16.214	0.393	69.704	72.602	8	18.683	7 1/8	99.628	53.407	50.938	226.980	206.476	20.504	0.224	0.235	0.697
18 O. D.	18.000	17.182	0.409	76.840	80.482	8	19.921	7 1/8	119.145	56.549	53.979	254.469	231.866	22.603	0.212	0.222	0.621
20 O. D.	20.000	19.182	0.409	85.577	89.617	8	21.921	7 1/8	127.850	62.832	60.262	314.159	288.986	25.173	0.191	0.199	0.498

*These sizes are not in the list included in the simplified practice recommendations of the U. S. Dept. Commerce.

Dimensions of Extra Strong Pipe

National Tube Co.

Size	Diameter		Thickness	Weight per Foot Plain Ends	Circumference		Transverse Area			Length of Pipe per Square Foot		Length of Pipe Containing 1 Cu. Ft.
	External	Internal			External	Internal	External	Internal	Metal	External Surface	Internal Surface	
	Inches	Inches	Inches	Pounds	Inches	Inches	Square Inches	Square Inches	Square Inches	Feet	Feet	Feet
1/8	0.405	0.215	0.095	0.314	1.272	0.675	0.129	0.036	0.093	9.431	17.766	3966.39
1/4	0.540	0.302	0.119	0.535	1.696	0.949	0.229	0.072	0.157	7.073	12.648	2010.290
3/8	0.675	0.423	0.126	0.738	2.121	1.329	0.358	0.141	0.217	5.658	9.030	1024.689
1/2	0.840	0.546	0.147	1.087	2.639	1.715	0.554	0.234	0.320	4.547	6.995	615.017
3/4	1.050	0.742	0.154	1.473	3.299	2.331	0.866	0.433	0.433	3.637	5.147	333.016
1	1.315	0.957	0.179	2.171	4.131	3.007	1.358	0.719	0.639	2.904	3.991	200.193
1 1/4	1.660	1.278	0.191	2.996	5.215	4.015	2.164	1.283	0.881	2.301	2.988	112.256
1 1/2	1.900	1.500	0.200	3.631	5.969	4.712	2.835	1.767	1.068	2.010	2.546	81.487
2	2.375	1.939	0.218	5.022	7.461	6.092	4.430	2.953	1.477	1.608	1.969	48.766
2 1/2	2.875	2.323	0.276	7.661	9.032	7.298	6.492	4.238	2.254	1.328	1.644	33.976
3	3.500	2.900	0.300	10.252	10.996	9.111	9.621	6.605	3.016	1.091	1.317	21.801
3 1/2	4.000	3.364	0.318	12.505	12.566	10.568	12.566	8.888	3.678	0.954	1.135	16.202
4	4.500	3.826	0.337	14.983	14.137	12.020	15.904	11.497	4.407	0.848	0.998	12.525
*4 1/2	5.000	4.290	0.355	17.611	15.708	13.477	19.635	14.455	5.180	0.763	0.890	9.962
5	5.563	4.813	0.375	20.778	17.477	15.120	24.306	18.194	6.112	0.686	0.793	7.915
6	6.625	5.761	0.432	28.573	20.813	18.099	34.472	26.067	8.405	0.576	0.663	5.524
*7	7.625	6.625	0.500	38.048	23.955	20.813	45.664	34.472	11.192	0.500	0.576	4.177
8	8.625	7.625	0.500	43.388	27.096	23.955	58.426	45.663	12.763	0.443	0.500	3.154
*9	9.625	8.625	0.500	48.728	30.238	27.096	72.760	58.426	14.334	0.396	0.442	2.465
10	10.750	9.750	0.500	54.735	33.772	30.631	90.763	74.662	16.101	0.355	0.391	1.929
*11	11.750	10.750	0.500	60.075	36.914	33.772	108.434	90.763	17.671	0.325	0.355	1.587
12	12.750	11.750	0.500	65.415	40.055	36.914	127.676	108.434	19.242	0.299	0.325	1.328

*These sizes are not in the list included in the simplified practice recommendations of the U. S. Dept. Commerce.

Lead Pipe Sizes and Weights

The Lead Pipe Industries Association has approved a new standard of lead pipe sizes which is being adopted by the principal manufacturers as an aid to consumers. In addition to eliminating numerous variations in pipe sizes now found among lead pipe manufacturers, an outstanding feature of the new standard is that all sizes of lead pipe in the A, AA and AAA classifications (or "Strong," "Extra Strong" and "Double Extra Strong") will safely withstand constant cold water pressures of 50, 75 and 100 lb. per square inch, respectively.

Classification	Safe Pressures in Lb. per Square Inch
A or S	50
AA or XS	75
AAA or XXS	100

Heretofore the safe working pressure of these classes of lead pipe has decreased as the diameter of the pipe has increased. The principal changes occur in the wall thicknesses of the sizes from 1¼-inch to 2-inch. Alterations made in sizes below 1¼-inch are of minor importance and small in number but have been made to introduce a uniformity which does not now exist among the lead pipe sizes of various manufacturers. The new standard is as follows:

Size Inside Diameter	Classification East	Classification West	Outside Diameter Inches	Weight per Foot Pounds	Weight per Foot Ounces
⅜"	E	AQ	.520	.....	8
	D	XL	.549	.....	10
	C	L	.577	.....	12
	B	M	.631	1	.....
	A	S	.725	1	8
	AA	XS	.811	2	.....
	AAA	XXS	.888	2	8
½"	E	AQ	.628	.....	9
	D	XL	.666	.....	12
	C	L	.712	1	.....
	B	M	.756	1	4
	A	S	.798	1	8
	AA	XS	.876	2	.....
	AAA	XXS	1.012	3	.....
⅝"	E	AQ	.765	.....	12
	D	XL	.803	1	.....
	C	L	.881	1	8
	B	M	.953	2	.....
	A	S	1.019	2	8
	AA	XS	1.082	3	.....
	AAA	XXS	1.137	3	8
¾"	E	AQ	.906	1	.....
	D	XL	.940	1	4
	C	L	1.006	1	12
	B	M	1.068	2	4
	A	S	1.156	3	.....
	AA	XS	1.212	3	8
	AAA	XXS	1.336	4	12
1"	E	AQ	1.192	1	10
	D	XL	1.232	2	.....
	C	L	1.284	2	8
	B	M	1.356	3	4
	A	S	1.428	4	.....
	AA	XS	1.492	4	12
	AAA	XXS	1.596	6	.....
1¼"	E	AQ	1.442	2	.....
	D	XL	1.486	2	8
	C	L	1.528	3	.....
1¼"	B	M	1.592	3	12
	A	S	1.670	4	12
	AA	XS	1.765	6	.....
	AAA	XXS	1.889	7	12
1½"	E	AQ	1.740	3	.....
	D	XL	1.776	3	8
	C	L	1.830	4	4
	B	M	1.882	5	.....
	A	S	1.984	6	8
	AA	XS	2.076	8	.....
	AAA	XXS	2.272	11	4
1¾"	D	XL	2.024	4	.....
	C	L	2.086	5	.....
	B	M	2.146	6	.....
	A	S	2.193	6	12
	AA	XS	2.404	10	8
	AAA	XXS	2.624	14	12
2"	E	AQ	2.185	3	.....
	D	XL	2.284	4	12
	C	L	2.354	6	.....
	B	M	2.410	7	.....
	A	S	2.503	8	12
	AA	XS	2.751	13	12
	AAA	XXS	3.008	19	8
2½"	.....	.....	2.75	5	.....
	.....	.....	3.00	10	10
3"	.....	.....	3.25	6	.....
	.....	.....	3.50	12	8
4"	.....	.....	4.25	7	14
	.....	.....	4.50	16	6
5"	.....	.....	5.25	9	14
	.....	.....	5.50	20	4
6"	.....	.....	6.25	11	13
	.....	.....	6.50	24	2

Lead pipe in sizes and weights per running foot other than indicated made to specification.

Dimensions of Clay Sewer Pipe

American Society for Testing Materials
(From Tentative Specifications C13-32T)

Internal Diam. Inches	Laying Length Feet	Inside Diam. at ½ In. Above Base of Socket Inches*	Depth of Socket Inches	Minimum Taper Socket	Thickness of Barrel Inches	Thickness of Socket
4	2	5⅞	1¾	1:20	½	The thickness of the socket ¼ in. from its outer end shall be not less than three-fourths of the thickness of the barrel of the pipe.
6	2, 2½	8⅛	2¼	1:20	⅝	
8	2, 2½, 3	10⅝	2½	1:20	¾	
10	2, 2½, 3	12⅞	2½	1:20	⅞	
12	2, 2½, 3	15¼	2½	1:20	1	
15	2, 2½, 3	18⅝	2½	1:20	1¼	
18	2, 2½, 3	22¼	3	1:20	1½	
21	2, 2½, 3	25¾	3	1:20	1¾	
24	2, 2½, 3	29⅜	3	1:20	2	
27	2½, 3	33	3½	1:20	2¼	
30	2½, 3	36⅝	3½	1:20	2½	
33	2½, 3	39⅞	4	1:20	2⅝	
36	2½, 3	43⅝	4	1:20	2¾	

*When pipes are furnished having an increase in thickness over that given in last column, the diameter of socket shall be increased by an amount equal to twice the increase of thickness of barrel.

Economical Steam Pipe Sizes

(Abstracted from "Economical Steam Pipe Sizes for Heating, Process and Power Steam," by A. W. Moulder, Heating, Piping and Air Conditioning, Aug.-Nov., 1930. Issued by Grinnell Company, Inc., in booklet form.)

These reference tables are figured in accordance with the following generally accepted formula for friction through pipes with steam:

$$W = 5220 \sqrt{\frac{D\,(P_1 - P_2)\,d^5}{L\left(1 + \frac{3.6}{d}\right)}}$$

In which:

W = Pounds of steam per hour.
D = Density of steam (Atmosp. = 0.03732 lb.; $\sqrt{0.03732} = 0.1932$.)
P_1 = Pressure at starting point.
P_2 = Pressure at end.
d = Diameter of pipe.
L = Length of pipe (1' 0").

In the formula the figure for density of steam at ½ lb. gage pressure has been used. This was chosen as a basis for the tables because their greatest and most complicated use is in conjunction with low pressure steam heating work where the operation is usually from 2 lb. downward.

The figures in the main body of the tables represent the *pounds weight of steam carried per hour*. This expression of measurement was used because, while possibly not as convenient for heating as if expressed in square feet of radiation, it is a more accurate basis for calculation. It also lends itself much better to calculations for other purposes than heating such as industrial piping, power piping, etc. (There is also shown a table of conversion factors for any condition of steam pressure or temperature). Furthermore, heating work now involves so many devices other than cast iron radiation, such as unit heaters, concealed copper radiation, etc., that all load quantities must necessarily be reduced to some common denominator. The one chosen, therefore, seems to have a wider application than any other.

Across the top of the tables in large figures is shown the *drop* or loss in gage pressure per foot of length of the pipe, reduced to ten-thousandths. In the larger sizes of pipe where several weights are available, and where extra heavy or double extra heavy pipe is used, there will be some error in the calculations for total drop.

In the vertical column next to the pipe sizes are given the *equivalent lengths in feet of the elbow*. This, for convenience, is shown on each page of the tables. This means that for each elbow in the piping, a footage of the amount shown in this column is added to the actual feet of straight pipe.

Example: A 2 in. connection has 20 ft. of straight pipe and two elbows. 20 ft. plus (2×7) = 34 ft. total equivalent length.

For practical purposes the following are also included as the equivalent of the number of elbows as listed:

1. Globe valve.....3 elbows
2. Connection out of side of teem cross or Y fitting.....2 elbows
3. Outlet from (not inlet into) radiator, boiler, tank...2 elbows
4. Angle ells, long radius ells, reducing ells.....1 elbow

No allowance is made for slight interruptions to straight-through flow such as couplings, end outlets of practically straight tees, crosses or full-opening gate valves.

It is realized that the foregoing is at some variance with most authorities, who give more accurate ratings to these various factors. Again, however, this is intended as a practical handling of the subject and if it varies somewhat from the theoretical, it is because certain simplifications have been found necessary to make this a workable method for everyday use. It should be borne in mind that these simplifications have been long tried and found to give practical results.

In the vertical column at the extreme left of the tables is given the *velocity of steam in feet per second*. Practically the only use for these values is in the lower velocities for heating work, where it occasionally becomes necessary to bring back the condensate against the flow of steam and therefore the "critical" or "terminal" velocity should be known. In the tables, only velocities of from 12 ft. per second up to 150 ft. per second have been shown, but, of course, other velocities may be calculated readily if needed.

Pounds of Steam Carried in Pipe *for* Drops per Lineal Foot of .0001 to .0005 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0001	.0002	.0003	.0004	.0005
	2	⅜	597	843	1.02	1.193	1.33
	2	½	1 17	1.65	2.00	2.34	2 61
	3	¾	2 68	3.78	4 58	5 365	5 98
	4	1	5 4	7.6	9 2	10.8	12 00
	5	1¼	11 87	16 73	20 3	23.73	26 46
	5	1½	18 45	25.85	31 57	36 92	41 17
12′	7	2	37 38	52.7	64 00	74 8	83 4
	8	2½	61 6	86.8	105 3	123 2	137 3
	10	3	112 79	128.7	193	225 8	251
	12	3½	168.5	237 5	288	337	376
	14	4	238.17	336	407	476.5	530 5
	15	4½	324	456 9	554.5	648.1	722 6
25′	17	5	440 9	621.6	754.4	881	983
	20	6	723 49	1021	1238	1447	1613
	24	7	1071.7	1511	1834	2143	2390
	27	8	1506.4	2124	2578	3013	3359
	30	9	2035.4	2870	3483	4071	4539
	34	10	2749	3876.1	4703.6	5498.1	6130.4
	40	12	4412	6221.2	7549.3	8824 4	9839.2
	47	14	5714	8057.1	9777 1	11428 5	12742.8
	53	16	8238	11615 7	14095.4	16476 2	18371
50′	60	18	11336	15984.8	19397.1	22673 5	25280.9
	67	20	15049	21219.9	25749.9	30099.2	33560.7
	81	24	24460	34489	41852	48922	54548

Pounds of Steam Carried in Pipe *for* Drops per Lineal Foot of .0006 to .0010 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0006	.0007	.0008	.0009	.0010
	2	⅜	1.455	1.575	1.68	1.79	1.885
12′	2	½	2.86	3.09	3.3	3.51	3.7
	3	¾	6.55	7.08	7.57	8.05	8.48
	4	1	13.17	14.25	15.23	16.2	17.06
	5	1¼	28.95	31.33	33.47	35.6	37.5
25′	5	1½	45.05	48.73	52.05	55.4	58.33
	7	2	91.3	98.7	105.5	112.2	118.2
	8	2½	150.3	162.6	173.6	184.7	194.6
	10	3	275.2	297.9	318.1	338.5	356.5
	12	3½	411.2	445	475	502.8	532.5
	14	4	581	629	672	714	752
50′	15	4½	790.7	855.5	913.8	972.2	1024
	17	5	1076	1164	1243	1322	1393
	20	6	1765	1910	2040	2170	2286
	24	7	2615	2829	3022	3215	3387
75′	27	8	3676	3977	4248	4519	4761
	30	9	4967	5373	5740	6106	6432
	34	10	6707.7	7257.5	7752.3	8247.2	8687
100′	40	12	10765.7	11648.2	12442.4	13236.6	13942.5
	47	14	13942.8	15085.6	16114.2	17142.8	18057.1
	53	16	20101	21748.6	23231.5	24714.3	26032.5
125′	60	18	27661.6	29929	31969.6	34010.2	35824.1
	67	20	36721.1	39731	42439.9	45148.9	47556.8
	81	24	59684	64576.9	68979.9	73383.8	77296.6

150′

Pounds of Steam Carried in Pipe *for* Drops per Lineal Foot of .0011 to .0015 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0011	.0012	.0013	.0014	.0015
12′	2	⅜	1.975	2.06	2.145	2.23	2.31
	2	½	3.87	4.05	4.22	4.38	4.53
	3	¾	8.88	9.28	9.67	10.02	10.37
25′	4	1	17.87	18.68	19.46	20.18	20.89
	5	1¼	39.3	41.06	42.78	44.4	45.9
	5	1½	61.5	63.9	66.5	69	71.4
	7	2	123.8	129.3	134.8	139.8	144.7
50′	8	2½	203.8	213	222	230.3	238.3
	10	3	373.5	390.5	406.8	422	436.5
	12	3½	558	583	607.5	630.3	652
	14	4	788	824	858	899	923
	15	4½	1072.6	1121.3	1168.2	1212	1254.1
75′	17	5	1459	1525	1589	1649	1706
	20	6	2394	2503	2608	2706	2800
	24	7	3547	3708	3864	4008	4148
100′	27	8	4987	5212	5431	5634	5830
	30	9	6737	7043	7337	7613	7877
125′	34	10	9099.4	9511.7	9910.4	10281.5	10638.9
	40	12	14904.4	15266.2	15906	16501.6	17075.2
	47	14	18914.2	19771.3	20599.9	21371.3	22114.2
150′	53	16	27268.2	28503.9	29698.4	30810.6	31881.5
	60	18	37524.6	39225.1	40868.9	42399.4	43873.2
	67	20	49814.3	52071.7	54253.9	56285.6	58242.1
	81	24	80965.7	84634.9	88181.7	91484	94663.9

Pounds of Steam Carried in Pipe *for* Drops per Lineal Foot of .0016 to .0020 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0016	.0017	.0018	.0019	.0020
	2	⅜	2,387	2.46	2.53	2,595	2,665
	2	½	4.68	4,825	4.965	5.1	5.23
25′	3	¾	10,72	11,05	11,37	11,67	12,00
	4	1	21.59	22.25	22.88	23.53	24.13
	5	1¼	47.5	48.9	50.3	51.7	53.6
	5	1½	73.8	76.0	77.2	80.4	82.5
50′	7	2	149.5	154.1	158.5	162.9	167.2
	8	2½	246.3	253.8	261	268.3	275.3
	10	3	451.2	465	477.3	491.5	502.1
	12	3½	674	694.5	714.5	734	753.5
	14	4	953	982	1009	1038	1064.5
75′	15	4½	1296.3	1336.1	1374	1412.3	1448.6
	17	5	1764	1818	1869	1921	1970
100′	20	6	2894	2983	3068	3153	3234
	24	7	4287	4419	4544	4671	4791
125′	27	8	6026	6211	6388	6565	6734
	30	9	8142	8392	8630	8870	9098
150′	34	10	10996.2	11334.4	11656	11980	12288.3
	40	12	17648.8	18191.5	18707.7	19228.4	19722.5
	47	14	22857	23559.9	24228.5	24902.7	25542.7
	53	16	32952.5	33965.8	34929.6	35901.7	36824.4
	60	18	45347	46741.4	48067.8	49405.5	50675.2
	67	20	60198.5	62049.6	63810.4	65586.3	67271.9
	81	24	97843.8	100852.5	103714.4	106600.8	109340.8

Economical Steam Pipe Sizes

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0021 to .0025 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0021	.0022	.0023	.0024	.0025
25'	2	⅜	2.73	2.8	2.86	2.92	2.992
	2	½	5.36	5.49	5.61	5.725	5.85
	3	¾	12.28	12.58	12.85	13.12	13.42
50'	4	1	24.74	25.33	25.87	26.45	27.00
	5	1¼	54.4	55.7	56.9	57.1	59.35
	5	1½	84.6	86.6	88.5	90.4	92.3
75'	7	2	171.3	175.4	179.3	183.2	187
	8	2½	282	289	295.3	301.7	308
	10	3	517.5	529.7	541	552.3	564.1
100	12	3½	774	791.5	808	825	843
	14	4	1092	1116	1143	1166	1191
	15	4½	1485.1	1520	1553.9	1587.6	1620.3
125'	17	5	2020	2068	2114	2160	2204
	20	6	3315	3393	3469	3544	3617
150'	24	7	4911	5027	5139	5250	5359
	27	8	6903	7065	7224	7380	7532
	30	9	9327	9547.1	9760	9971.7	10177.2
	34	10	12507.9	12894.2	13181.8	13467.6	13745.3
	40	12	20219.3	20695	21156.5	21615.4	22061
	47	14	26186.2	26802.2	27399.9	27994.2	28571.3
	53	16	37752	38640.1	39501.8	40358.6	41190.6
	60	18	51951.7	53173.8	54359.7	55538.7	56683.7
	67	20	68966.4	70588.8	72163	73728.2	75248.2
	81	24	112094.8	114731.7	117290.3	119834.2	122304.8

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0036 to .0040 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0036	.0037	.0038	.0039	.0040
25'	2	⅜	3.575	3.63	3.67	3.72	3.77
	2	½	7.03	7.12	7.21	7.3	7.4
	3	¾	16.08	16.3	16.52	16.73	16.95
50'	4	1	32.4	32.83	33.27	33.73	34.15
	5	1¼	71.2	72.2	73.1	74.1	75.1
75'	5	1½	110.7	112.3	113.8	115.3	116.8
	7	2	224.3	227.4	230.5	233.5	236.5
100'	8	2½	369	374.6	379.6	384.6	389.5
	10	3	677	686	695	704.5	713.7
125'	12	3½	1012	1025	1038	1054	1065
	14	4	1429	1449	1468	1487	1506
	15	4½	1944.4	1971.2	1997.6	2023.8	2049.4
150'	17	5	2645	2681	2717	2753	2788
	20	6	4341	4400	4467	4518	4575
	24	7	6430	6518	6606	6693	6778
	27	8	9039	9163	9286	9408	9527
	30	9	12212.7	12381.2	12546.5	12711.4	12873.2
	34	10	16494.4	16722	16945.3	17167.9	17385.1
	40	12	26473.2	26838.5	27196.8	27554.2	27902.8
	47	14	34285.6	34758.7	35222.7	35685.6	36137
	53	16	49428.8	50110.9	50779.8	51447.1	52097.9
	60	18	68020.5	68959.1	69879.7	70798	71693.6
	67	20	90237.8	91543.9	92766	93985	95173.9
	81	24	146765.7	148791.1	150777.3	152758.7	154691.1

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0051 to .0055 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0051	.0052	.0053	.0054	.0055
25'	2	⅜	4.26	4.3	4.34	4.375	4.42
	2	½	8.36	8.44	8.52	8.6	8.67
	3	¾	19.13	19.32	19.5	19.68	19.89
50'	4	1	38.55	38.88	39.3	39.65	40.0
	5	1¼	84.8	85.6	86.4	87.2	87.9
75'	5	1½	131.8	133.1	134.4	135.7	136.8
	7	2	267	269.5	272.2	274.7	277
100'	8	2½	439.6	444	448.3	452.5	456.6
	10	3	805.5	813	821	829.5	836
125'	12	3½	1204	1214	1226	1238	1249
	14	4	1690	1716	1734	1750	1765
	15	4½	2314	2336	2359	2381	2403
150'	17	5	3148	3179	3209	3240	3269
	20	6	5166	5217	5267	5316	5365
	24	7	7653	7728	7802	7875	7948
	27	8	10758	10863	10967	11070	11172
	30	9	14535.1	14677.6	14818.1	14956.5	15094.9
	34	10	19631.1	19823.5	20013.2	20200.1	20387.1
	40	12	31507.5	31816.4	32120.8	32420.9	32720.9
	47	14	40805.6	41205.6	41599.9	41988.4	42377
	53	16	58828.5	59405.1	59973.6	60533.8	61094
	60	18	80955.7	81749.3	82531.5	83302.4	84073.3
	67	20	107469.5	108522.9	109561.4	110584.7	111608.1
	81	24	174675.7	176388	178075.8	179739.1	181402.5

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0026 to .0030 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0026	.0027	.0028	.0029	.0030
25'	2	⅜	3.035	3.095	3.155	3.21	3.26
	2	½	5.96	6.08	6.19	6.3	6.41
	3	¾	13.67	13.93	14.19	14.43	14.68
50'	4	1	27.53	28.05	28.56	29.07	29.57
	5	1¼	60.5	61.65	62.8	63.9	65
	5	1½	94.1	95.9	97.7	99.4	101.1
75'	7	2	190.5	194.3	197.8	201.3	204.7
	8	2½	314	320	326	331.5	337
100'	10	3	566.1	586	597	608	617.5
	12	3½	859	875	892	907	923
	14	4	1215	1237.5	1260	1282.5	1304
125'	15	4½	1652.4	1683.9	1714.8	1745.2	1774.9
	17	5	2248	2291	2333	2374	2415
150'	20	6	3689	3759	3828	3896	3963
	24	7	5465	5569	5671	5768	5870
	27	8	7682	7828	7971	8112	8251
	30	9	10374.7	10576.6	10770.6	10961.3	11148.1
	34	10	14017.5	14284.7	14546.7	14804.3	15056.7
	40	12	22497.8	22926.7	23347.1	23760.6	24165.6
	47	14	29137	29692.5	30237	30772.4	31297
	53	16	42006.2	42806.9	43592	44363.9	45120.2
	60	18	57806	58908	59988.4	61050.6	62091.3
	67	20	76738.1	78200.9	79635.1	81045.3	82426.9
	81	24	124726.4	127104	129435.2	131727.1	133972.7

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0041 to .0045 Lb.

Velocity Ft. Per Sec	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0041	.0042	.0043	.0044	.0045
25'	2	⅜	3.82	3.863	3.91	3.955	4.0
	2	½	7.49	7.58	7.67	7.76	7.85
	3	¾	17.17	17.37	17.58	17.78	17.98
50'	4	1	34.57	35.0	35.4	35.8	36.23
	5	1¼	76.0	76.9	77.8	78.7	79.6
75'	5	1½	118.1	119.6	120.9	122.3	123.8
	7	2	239.3	242.3	245	248	250.8
100'	8	2½	394	399	403.8	408.3	413
	10	3	722	731	739	748	756
125'	12	3½	1079	1093	1105	1117.5	1130
	14	4	1525	1543	1565	1580	1596
150'	15	4½	2075	2100	2124.9	2149.5	2173.9
	17	5	2823	2857	2891	2924	2957
	20	6	4633	4688	4744	4799	4853
	24	7	6862	6945	7027	7109	7189
	27	8	9646	9762	9878	9992	10106
	30	9	13033	13189.7	12346.4	13501.1	13653.8
	34	10	17602.3	17813.9	18025.6	18234.5	18440.7
	40	12	28251.3	28591.1	28930.8	29266.1	29597
	47	14	36588.4	37028.4	37468.4	37902.7	38331.3
	53	16	52748.7	53383.1	54017.4	54643.5	55261.4
	60	18	72589.2	73462.1	74335	75196.6	76049.9
	67	20	96362.8	97521.6	98680.5	99824.2	100953
	81	24	156623.5	158507	160390.5	162249.5	164084.1

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0056 to .0060 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0056	.0057	.0058	.0059	.0060
25'	2	⅜	4.46	4.5	4.54	4.58	4.62
	2	½	8.75	8.83	8.9	8.99	9.06
	3	¾	20.07	20.23	20.42	20.6	20.75
50'	4	1	40.4	40.76	41.1	41.46	41.83
	5	1¼	88.8	89.6	90.4	91.2	91.9
75'	5	1½	138.1	139.3	140.5	141.8	143
	7	2	279.7	282.3	284.7	287.2	289.6
100'	8	2½	461	465	469	473	477
125'	10	3	846	852	858 5	866	874
	12	3½	1262	1272	1283	1294	1306
150'	14	4	1783	1799	1813	1830	1845
	15	4½	2425	2446	2467	2489	2510
	17	5	3299	3328	3357	3386	3415
	20	6	5414	5462	5509	5557	5604
	24	7	8020	8091	8161	8232	8302
	27	8	11273	11372	11472	11571	11669
	30	9	15231.3	15365.6	15499.9	15634.3	15766.6
	34	10	20571.2	20752.7	20934.1	21115.6	21294.2
	40	12	33016.5	33307.7	33598.9	33890.1	34176.9
	47	14	42759.8	43137	43514.1	43891.3	44262.7
	53	16	61645.9	62189.6	62733.3	63277.1	63812.5
	60	18	84832.9	85581.1	86329.3	87077.5	87814.4
	67	20	112616.4	113609.7	114603	115596.3	116574.5
	81	24	183041.4	184655.8	186270.2	187884.6	189474.6

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0031 to .0035 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0031	.0032	.0033	.0034	.0035
25'	2	⅜	3.315	3.37	3.42	3.475	3.523
	2	½	6.51	6.62	6.72	6.83	6.92
	3	¾	14.92	15.17	15.39	15.64	15.85
50'	4	1	30.06	30.5	31.03	31.47	31.95
	5	1¼	66.1	67.1	68.2	69.2	70.1
75'	5	1½	102.9	104.3	106	107.6	109.1
	7	2	208.2	211.3	214.8	218	221
100'	8	2½	343	348	353.7	359	364
	10	3	628	637.5	645	657.8	666.5
	12	3½	938	952	969	982.5	995
125'	14	4	1326	1346	1368	1388	1408
	15	4½	1804.3	1833.2	1861.6	1889.6	1917.2
	17	5	2454	2594	2532	2570	2608
150'	20	6	4028	4092	4156	4219	4280
	24	7	5966	6062	6156	6249	6340
	27	8	8387	8521	8653	8784	8912
	30	9	11333	11514.3	11692.8	11868.7	12041.7
	34	10	15306.2	15551.2	15792.3	16029.8	16263.5
	40	12	24566.2	24959.4	25346.3	25727	26102.6
	47	14	31815.9	32325	32826.2	33319.9	33805.6
	53	16	45868.2	46602.2	47324.7	48036.5	48736.8
	60	18	63120.7	64130.8	65125	66104.5	67068.2
	67	20	83793.4	85134.3	86454.1	87754.4	89033.6
	81	24	136193.7	138373.2	140518.4	142631.8	144711

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0046 to .0050 Lb.

Velocity Ft. Per Sec	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0046	.0047	.0048	.0049	.0050
25'	2	⅜	4.04	4.09	4.13	4.175	4.215
	2	½	7.93	8.02	8.1	8.19	8.27
	3	¾	18.18	18.37	18.57	18.77	18.95
50'	4	1	36.63	37.0	37.4	37.8	38.17
	5	1¼	80.5	81.3	82.2	83.1	83.9
75'	5	1½	125.2	126.5	127.8	129.2	130.5
	7	2	253.5	256.3	259	261.7	264.3
100'	8	2½	417.8	422	426.7	431	435.3
	10	3	765	772.5	782	789.5	791
125'	12	3½	1143	1155	1167.5	1179	1192
	14	4	1615	1632	1650	1667	1685
	15	4½	2197.8	2221.5	2245.2	2268.5	2291.5
150'	17	5	2990	3022	3054	3086	3117
	20	6	4907	4960	5012	5064	5116
	24	7	7268	7347	7425	7502	7578
	27	8	10217	10327	10437	10545	10652
	30	9	13804.4	13953	14101.6	14248.1	14392.7
	34	10	18644.2	18844.8	19045.5	19243.5	19438.8
	40	12	29923.5	30245.6	30567.7	30885.4	31198.7
	47	14	38754.1	39171.3	39588.4	39999.9	40405.6
	53	16	55871	56472.4	57073.7	57666.9	58251.8
	60	18	76885.8	77713.4	78541	79357.2	80162.1
	67	20	102066.6	103165.3	104263.9	105347.5	106416
	81	24	165894.2	167679.9	169465.5	171226.7	172963.4

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0061 to .0065 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0061	.0062	.0063	.0064	.0065
25'	2	⅜	4.66	4.69	4.73	4.77	4.81
	2	½	9.14	9.21	9.28	9.36	9.43
	3	¾	20.92	21.2	21.25	21.45	21.6
50'	4	1	42.17	42.5	42.85	43.2	43.5
	5	1¼	92.7	93.4	94.1	94.9	95.7
75'	5	1½	144.1	145.3	146.4	147.6	148.8
100'	7	2	292	294.3	296.7	299	301.3
	8	2½	481	494.6	488.5	492.6	496.5
125'	10	3	881	888	894.5	902.5	909
	12	3½	1315	1326	1338	1349	1358
150'	14	4	1857.5	1875	1890	1905	1920
	15	4½	2531	2551	2572	2592	2612
	17	5	3443	3471	3500	3527	3554
	20	6	5651	5697	5742	5788	5833
	24	7	8370	8439	8506	8574	8640
	27	8	11766	11862	11957	12052	12145
	30	9	15896.9	16027.1	16155.4	16283.6	16409.8
	34	10	21470.2	21646.1	21819.3	21992.5	22163
	40	12	34459.3	34741.7	35019.6	35297.6	35571.2
	47	14	44628.4	44994.1	45354.1	45714.1	46068.4
	53	16	64339.8	64867	65386	65905	66415.8
	60	18	88540	89265.5	89979.7	90694	91396.8
	67	20	117537.7	118500.8	119449	120397.1	121330.2
	81	24	191040.1	192605.6	194146.6	195687.7	197204.3

Economical Steam Pipe Sizes

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0066 to .0070 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot .0066	.0067	.0068	.0069	.0070
	2	⅜	4.84	4.88	4.915	4.95	4.985
	2	½	9.5	9.58	9.65	9.72	9.78
	3	¾	21.8	21.95	22 1	22.25	22.4
50′	4	1	43.87	44.2	44.5	44.8	45.17
	5	1¼	96.4	97.1	97.8	98.6	99.3
75′	5	1½	149.9	151	152.2	153.2	154.4
100′	7	2	303.7	306	308.3	310.6	312.7
	8	2½	500.5	504	508	511.5	515
125′	10	3	916.5	923.5	931	936	944
150′	12	3½	1370	1380	1390	1398	1410
	14	4	1935	1950	1965	1980	1994
	15	4½	2632	2652	2672	2691	2711
	17	5	3581	3609	3636	3662	3689
	20	6	5878	5922	5966	6009	6053
	24	7	8707	8772	8838	8902	8966
	27	8	12239	12331	12423	12513	12603
	30	9	16536	16660.2	16784	16906.4	17028.6
	34	10	22333.4	22501.1	22668.8	22833.7	22998.7
	40	12	35844.7	36113.9	36383	36647.7	36912.5
	47	14	46422	46771.3	47119.8	47462.7	47805.5
	53	16	66926.5	67429.1	67931.6	68425.9	68920.2
	60	18	92099.7	92791.2	93482.8	94163	94843.2
	67	20	122263.3	123181.3	124099.3	125002.3	125905.3
	81	24	198720.8	200213	201705.1	203172.7	204640.4

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0081 to .0085 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot .0081	.0082	.0083	.0084	.0085
	2	⅜	5.37	5.40	5.43	5.46	5.49
	2	½	10.53	10.58	10.65	10.71	10.77
	3	¾	24.13	24.3	24.4	24.57	24.7
50′	4	1	48.6	48.9	49.2	49.5	49.77
75′	5	1¼	106.8	107.4	108.1	108.75	109.3
100′	5	1½	166	167.1	168.2	169.2	170.1
	7	2	336.5	338.5	340.6	342.6	344.6
125′	8	2½	554	557.5	561	564.5	567.5
150′	10	3	1015	1021	1027	1034	1010
	12	3½	1516	1525	1535	1545	1554
	14	4	2142	2155	2169	2182	2195
	15	4½	2916	2934	2952	2970	2987
	17	5	3968	3992	4017	4041	4065
	20	6	6511	6551	6591	6631	6670
	24	7	9646	9704	9763	9822	9880
	27	8	13558	13641	13726	13807	13888
	30	9	18319	18431	18542.9	18654.9	18764.8
	34	10	24741.6	24892.8	25044	25195.2	25343.6
	40	12	39709.8	39952.5	40195.2	40437.8	40676.1
	47	14	51428.4	51742.7	52057	52371.3	52679.8
	53	16	74143.2	74596.3	75049.3	75502.4	75947.3
	60	18	102030.7	102654.2	103277.7	103901.3	104513.4
	67	20	135446.7	136274.5	137102.2	137929.9	138742.6
	81	24	220148.6	221494	222839.4	224184.7	225505.6

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0096 to .0100 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot .0096	.0097	.0098	.0099	.0100
	2	⅜	5.84	5.87	5.9	5.93	5.97
	2	½	11.46	11.5	11.57	11.63	11.7
	3	¾	26.25	26.38	26.5	26.63	26.8
50′	4	1	52.9	53.2	53.45	53.7	54.0
75′	5	1¼	116.2	116.8	117.4	118.1	118.7
100′	5	1½	180.8	181.7	182.6	183.6	184.5
125′	7	2	366.3	368.3	370	372	373.8
	8	2½	603	606.5	609.5	612.7	615.9
150′	10	3	1105	1110	1116	1122	1127.9
	12	3½	1651	1660	1668	1676	1685
	14	4	2332	2345	2357	2369	2381.7
	15	4½	3175	3191	3208	3224	3240.7
	17	5	4320	4342	4365	4386	4409.1
	20	6	7089	7125	7162	7198	7234.9
	24	7	10501	10554	10609	10663	10717.3
	27	8	14761	14836	14913	14988	15064.9
	30	9	19943.3	20045.1	20148.9	20250.7	20354.5
	34	10	26935.3	27072.8	27213	27350.4	27490.7
	40	12	43230.8	43451.4	43676.4	43897	44122
	47	14	55988.4	56274.1	56565.5	56851.2	57142.7
	53	16	80717.2	81129.1	81549.2	81961.1	82381.3
	60	18	111077.4	111643.3	112222.4	112789.3	113367.5
	67	20	147456.4	148208.8	148976.4	149728.9	150496.4
	81	24	239668.5	240891.5	242139.1	243362.1	244609.6

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0071 to .0075 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot .0071	.0072	.0073	.0074	.0075
	2	⅜	5.025	5.06	5.09	5.13	5.165
	2	½	9.86	9.93	10.0	10.07	10.13
	3	¾	22.6	22.73	22.9	23.05	23.2
50′	4	1	45.5	45.8	46.1	46.45	46.76
75′	5	1¼	100	100.7	101.4	102.1	102.8
100′	5	1½	155.5	156.6	157.7	158.8	159.8
125′	7	2	315	317.3	319.5	321.5	323.8
	8	2½	519	521.5	526	530	533.4
	10	3	950	958	964	970	977
150′	12	3½	1420	1430	1440	1450	1460
	14	4	2009	2021	2035	2050	2062
	15	4½	2730	2749	2768	2787	2806
	17	5	3715	3741	3767	3793	3818
	20	6	6096	6139	6182	6224	6265
	24	7	9030	9094	9157	9219	9281
	27	8	12694	12783	12872	12959	13046
	30	9	17150.7	17270.8	17390.9	17508.9	17627
	34	10	23163.6	23325.8	23488	23647.5	23806.9
	40	12	37177.2	37437.5	37697.9	37953.8	38209.7
	47	14	48148.4	48485.5	48822.7	49154.1	49485.5
	53	16	69414.5	69900.5	70386.6	70864.4	71342.2
	60	18	95523.4	96192.3	96861.1	97518.7	98176.2
	67	20	126808.3	127696.2	128584.1	129457	130329.9
	81	24	206108	207551.2	208994.4	210413.2	211831.9

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0086 to .0090 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot .0086	.0087	.0088	.0089	.0090
	2	⅜	5.53	5.86	5.59	5.625	5.66
	2	½	10.85	10.9	10.97	11.03	11.08
	3	¾	24.85	25.0	25.12	25.27	25.4
50′	4	1	50.05	50.3	50.6	50.9	51.25
75′	5	1¼	110	110.7	111.3	111.9	112.6
100′	5	1½	171.1	172.2	173.1	174.1	175.1
	7	2	346.6	348.7	350.7	352.6	351.7
125′	8	2½	571	574.5	578	581	584
150′	10	3	1015	1053	1057	1064	1070
	12	3½	1564	1572	1581	1590	1600
	14	4	2208	2220	2232	2243	2258
	15	4½	3005	3022	3043	3057	3074
	17	5	4089	4112	4135	4160	4182
	20	6	6709	6748	6786	6825	6863
	24	7	9938	9996	10053	10111	10166
	27	8	13970	14051	14131	14212	14291
	30	9	18874.7	18984.6	19092.5	19202.4	19308.3
	34	10	25492.1	25640.5	25786.2	25934.7	26077.6
	40	12	40914.4	41152.6	41386.5	41624.7	41854.2
	47	14	52988.4	53297	53599.8	53908.4	54205.5
	53	16	76392.2	76837	77273.6	77718.5	78146.9
	60	18	105125	105737.8	106338.7	106950.8	107540.4
	67	20	139555.3	140368	141165.6	141978.3	142760.9
	81	24	226826.5	228147.4	229443.8	230764.7	232036.7

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0102 to .0110 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot .0102	.0104	.0106	.0108	.0110
	2	⅜	6.02	6.08	6.14	6.2	6.26
	2	½	11.8	11.92	12.04	12.15	12.27
50′	3	¾	26.85	27.15	27.4	27.66	27.9
75′	4	1	54.5	55.0	55.6	56.1	56.6
100′	5	1¼	119.8	120.8	122.3	123.4	124.5
125′	5	1½	186.3	188.2	190	191.8	193.5
150′	7	2	377.4	381	385	388.7	392
	8	2½	621.5	628	634	640	646
	10	3	1138	1150	1161	1172	1182
	12	3½	1700	1716	1732	1750	1766
	14	4	2402	2429	2452	2475	2500
	15	4½	3272	3304	3336	3367	3398
	17	5	4453	4496	4539	4582	4624
	20	6	7307	7378	7448	7519	7588
	24	7	10823	10930	11033	11137	11240
	27	8	15214	15363	15509	15656	15800
	30	9	20556	20757.5	20955	21152.4	21347.8
	34	10	27762.8	28035	28301.6	28568.3	28832.2
	40	12	44558.8	44995.6	45423.6	45851.6	46275.2
	47	14	57708.4	58274.1	58828.4	59382.7	59931.2
	53	16	83196.9	84012.4	84811.5	85610.6	86401.5
	60	18	114489.8	115612.1	116711.8	117811.5	118899.8
	67	20	151986.3	153476.2	154936	156395.9	157840.6
	81	24	247031.2	249452.9	251825.6	254198.3	256546.6

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0076 to .0080 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot .0076	.0077	.0078	.0079	.0080
	2	⅜	5.20	5.23	5.27	5.3	5.33
	2	½	10.18	10.26	10.33	10.39	10.46
	3	¾	23.35	23.52	23.66	23.8	23.97
50′	4	1	47.04	47.4	47.67	48.0	48.3
75′	5	1¼	103.4	104.1	104.8	105.5	106 2
100′	5	1½	160.8	161.9	163	164.2	165.1
125′	7	2	325.8	328	330	332.3	334.5
	8	2½	536 5	540 5	544	548	551
	10	3	983	990	996	1001	1003
150′	12	3½	1468	1478	1488	1497	1507
	14	4	2075	2090	2103	2117.5	2130
	15	4½	2824	2843	2861	2880	2898
	17	5	3843	3869	3894	3919	3943
	20	6	6307	6349	6389	6430	6471
	24	7	9342	9404	9464	9526	9586
	27	8	13132	13220	13304	13390	13474
	30	9	17743	17861.1	17975.1	18091.1	18205.1
	34	10	23963.6	24123	24277	24433.7	24587.6
	40	12	38461.2	38717.1	38964.2	39215.7	39462.7
	47	14	49811.3	50142.7	50462.7	50788.4	51108.4
	53	16	71811.8	72289.6	72750.9	73220.5	73681.8
	60	18	98822.4	99479.9	100114.8	100761	101395.8
	67	20	131187.7	132060.6	132903.4	133761.2	134604
	81	24	213226.2	214644.9	216014.7	217400	218778.8

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0091 to .0095 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot .0091	.0092	.0093	.0094	.0095
	2	⅜	5.68	5.72	5.75	5.78	5.81
	2	½	11.15	11.22	11.27	11.33	11.4
	3	¾	25.55	25.7	25.85	26.0	26.12
50′	4	1	51.5	51.8	52.0	52.3	52.6
75′	5	1¼	113.2	113.8	114.5	115	115.7
100′	5	1½	176	177	178	179	180
125′	7	2	356.5	358.6	360.6	362.4	364.3
	8	2½	587.5	590.5	594	597	600
150′	10	3	1075	1082	1087	1093	1100
	12	3½	1608	1616	1625	1634	1644
	14	4	2270	2282	2295	2308	2320
	15	4½	3091	3108	3125	3141	3158
	17	5	4206	4229	4252	4275	4297
	20	6	6901	6939	6977	7014	7051
	24	7	10223	10279	10334	10390	10445
	27	8	14370	14449	14521	14605	14682
	30	9	19416.2	19522	19627.8	19733.7	19837.5
	34	10	26223.8	26366.3	26509.2	26652.2	26792.4
	40	12	42088	42317.4	42546.9	42776.3	43001.3
	47	14	54508.4	54805.5	55102.7	55399.8	55691.2
	53	16	78583.5	79011.9	79440.3	79868.7	80288.8
	60	18	108141.2	108730.7	109320.2	109909.7	110487.9
	67	20	142558.5	144341.1	145123.7	145906.2	146673.8
	81	24	233333.1	234605.1	235877	237149	238396.5

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0112 to .0120 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot .0112	.0114	.0116	.0118	.0120
	2	⅜	6.315	6.37	6.43	6.48	6.54
	2	½	12.38	12.5	12.59	12.7	12.82
	3	¾	28.17	28.4	28.67	28.9	29.15
50′	4	1	57.17	57.6	58.2	58.65	59.15
75′	5	1¼	125.7	126.8	127.9	129	130.1
100′	5	1½	195.3	197	198.8	200 4	202.3
125′	7	2	395.7	399.2	403	406	409.5
	8	2½	652	657	663.5	669	674
150′	10	3	1194	1204	1215	1225	1235
	12	3½	1783	1798	1815	1831	1845
	14	4	2520	2540	2562	2585	2603
	15	4½	3429	3460	3493	3520	3549
	17	5	4666	4708	4749	4789	4830
	20	6	7657	7725	7792	7859	7925
	24	7	11342	11443	11543	11641	11740
	27	8	15943	16085	16225	16364	16502
	30	9	21541.2	21732.5	21921.8	22109.1	22296.3
	34	10	29003.4	29351.8	29607.4	29860.4	30113.3
	40	12	46694.3	47109.3	47519.4	47925.3	48331.3
	47	14	60474.1	61011.2	61542.7	62068.4	62594.1
	53	16	87184.1	87958.5	88724.7	89482.6	90240.5
	60	18	119976.	121042.4	122096.7	123139.7	124182.7
	67	20	159270.3	160685	162084.6	163469.2	164853.8
	81	24	258870.4	261169.7	263444.6	265695	267945.4

Economical Steam Pipe Sizes

Pounds of Steam Carried in Pipe *for* Drops per Lineal Foot of .0122 to .0130 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0122	.0124	.0126	.0128	.0130
50'	2	¾	6.575	6.65	6.7	6.75	6.815
	2	1½	12.93	13.03	13.13	13.23	13.34
	3	¾	29.4	29.6	29.85	30.1	30.57
75'	4	1	59 65	60.0	60.6	61.1	61.6
	5	1¼	131.2	132.2	133.3	134.3	135.4
100'	5	1½	203.8	205.7	207.3	208.7	210.5
	7	2	413	416.4	420	423	426.5
125'	8	2½	680	686	691	696 5	702
150'	10	3	1245	1255	1265	1275	1285
	12	3½	1860	1875	1890	1905	1920
	14	4	2628	2650	2672	2690	2715
	15	4½	3579	3608	3637	3666	3694
	17	5	4869	4909	4949	4988	5027
	20	6	7991	8056	8121	8185	8249
	24	7	11837	11934	12030	12125	12219
	27	8	16639	16775	16910	17043	17176
	30	9	22481.6	22664.7	22847.9	23027.1	23206.2
	34	10	30363.4	30610.8	30858.3	31100.2	31342.1
	40	12	48732.8	49129.9	49527	49915.3	50303.5
	47	14	63114.1	63628.4	64142.7	64645.5	65148.4
	53	16	90990.1	91731.6	92473	93198	93922.9
	60	18	125214.4	126234.7	127255	128252.6	129250.2
	67	20	166223.3	167577.7	168932.2	170256.6	171580.9
	81	24	270171.3	272372.8	274574.3	276726.9	278879.4

Pounds of Steam Carried in Pipe *for* Drops per Lineal Foot of .0132 to .0140 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0132	.0134	.0136	.0138	.0140
50'	2	¾	6.85	6.91	6.96	7.02	7.07
	2	1½	13.44	13.54	13.65	13.75	13.85
	3	¾	30.78	31.03	31.26	31.47	31.72
75'	4	1	62.0	62.5	62.95	63.4	63.9
100'	5	1¼	136.3	137.5	138.5	139.5	140.5
125'	5	1½	212	213.6	215.2	216.7	218.4
	7	2	429.6	433	436	439	442.5
150'	8	2½	707	713	718	723	729
	10	3	1297	1305	1315	1325	1335
	12	3½	1935	1950	1965	1980	1995
	14	4	2735	2755	2775	2798	2818
	15	4½	3723	3751	3779	3806	3834
	17	5	5066	5103	5141	5179	5217
	20	6	8312	8374	8437	8499	8560
	24	7	12313	12405	12497	12590	12681
	27	8	17308	17438	17567	17697	17825
	30	9	23385.2	23560.3	23735.4	23910 4	24083.5
	34	10	31584	31820.4	32056.9	32293.3	32526.9
	40	12	50691.8	51071.3	51450.7	51830.2	52205.2
	47	14	65651.2	66142.6	66634.1	67125.5	67611.2
	53	16	94647.9	95356.3	96064.8	96773.3	97473.6
	60	18	130247.9	131222.8	132197.8	133172.8	134136.4
	67	20	172905.3	174199.6	175493.8	176788.1	178067.3
	81	24	281032	283135.6	285239.3	287342.9	289422.1

Pounds of Steam Carried in Pipe *for* Drops per Lineal Foot of .0142 to .0150 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0142	.0144	.0146	.0148	.0150
50'	2	¾	7.115	7.17	7.21	7.26	7.315
	2	1½	13.93	14.05	14.13	14.23	14.33
	3	¾	31.95	32.17	32.4	32.63	32.76
75'	4	1	64.3	64.8	65.3	65.6	66.15
100'	5	1¼	141.5	142.5	143.5	144.5	145.4
125'	5	1½	220	221.6	223	224.4	226
150'	7	2	445.5	448.7	451.7	455	457.7
	8	2½	734	739	744	749	754
	10	3	1345	1353	1362	1372	1382
	12	3½	2010	2022	2036	2050	2065
	14	4	2838	2858	2878	2898	2912
	15	4½	3861	3880	3915	3942	3968
	17	5	5254	5291	5328	5364	5400
	20	6	8621	8682	8742	8801	8861
	24	7	12771	12861	12950	13038	13125
	27	8	17951	18078	18203	18327	18450
	30	9	24254.4	24425.4	24594.4	24761.3	24928.2
	34	10	32757.9	32988.8	33217	33442.4	33667.8
	40	12	52575.8	52946.4	53312.7	53674.5	54036.3
	47	14	68091.2	68571.2	69045.5	69514.1	69982.6
	53	16	98165.6	98857.6	99541.3	100216.8	100892.4
	60	18	135088.7	136041	136981.9	137911.5	138841.1
	67	20	179331.5	180595.7	181844.8	183078.9	184312.9
	81	24	291476.3	293531.5	295561.8	297567.6	299573.4

Pounds of Steam Carried in Pipe *for* Drops per Lineal Foot of .0152 to .0160 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0152	.0154	.0156	.0158	.0160
50'	2	¾	7.36	7.41	7.45	7.49	7.55
	2	1½	14.42	14.52	14.62	14.7	14.8
75'	3	¾	33.05	33.26	33.5	33.67	33.9
	4	1	66.55	67.0	67.5	67.8	68.3
100'	5	1¼	146.4	147.4	148.3	149.3	150.1
125'	5	1½	227 5	229	230.6	232	233.3
150'	7	2	461	464	467	470	472.5
	8	2½	759	764	769	774	779
	10	3	1390	1398	1410	1418	1426
	12	3½	2080	2090	2106	2118	2131
	14	4	2935	2952	2975	2993	3010
	15	4½	3995	4021	4047	4073	4099
	17	5	5436	5471	5507	5542	5577
	20	6	8919	8978	9036	9094	9152
	24	7	13212	13299	13386	13471	13556
	27	8	18572	18694	18816	18935	19056
	30	9	25093	25257.9	25422.8	25583.6	25746.4
	34	10	33890.5	34113.2	34335.8	34553	34772.9
	40	12	54393.6	54751	55108.4	55457	55810
	47	14	70445.5	70908.4	71371.2	71822.6	72279.8
	53	16	101559.7	102227	102894.2	103545.1	104204.1
	60	18	139759.4	140677.7	141596	142491.6	143398.5
	67	20	185532	186751	187970	189158.9	190362.9
	81	24	301554.7	303536.1	305517.4	307449.8	309406.7

Pounds of Steam Carried in Pipe *for* Drops per Lineal Foot of .0162 to .0170 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0162	.0164	.0166	.0168	.0170
50'	2	¾	7.60	7.65	7.685	7.73	7.78
	2	1½	14.88	14.99	15.07	15.16	15.23
75'	3	¾	34.13	34.33	34.54	34.74	34.94
100'	4	1	68.7	69.15	69.55	70	70.4
	5	1¼	151.1	152.1	153	153.8	154.8
125'	5	1½	235	236.3	237.8	239.3	240.5
150'	7	2	476	478.7	482	484.6	487.4
	8	2½	783.5	788.5	793.5	798	803
	10	3	1435	1444	1453	1462	1470
	12	3½	2145	2159	2170	2185	2195
	14	4	3030	3048	3068	3085	3100
	15	4½	4124	4150	4175	4200	4225
	17	5	5611	5646	5681	5715	5749
	20	6	9208	9265	9322	9377	9433
	24	7	13640	13725	13808	13891	13973
	27	8	19173	19292	19410	19526	19642
	30	9	25905.2	26066	26224.8	26381.5	26538.2
	34	10	34987.4	35204.5	35419	35630.6	35842.3
	40	12	56154.1	56502.7	56846.8	57186.6	57526.3
	47	14	72725.5	73176.9	73622.6	74062.6	74502.6
	53	16	104846.7	105497.5	106140.1	106774.4	107408.7
	60	18	144282.8	145178.4	146062.6	146935.6	147808.5
	67	20	191536.8	192725.7	193899.6	195058.4	196217.2
	81	24	311314.7	313247.1	315155	317038.5	318922

Pounds of Steam Carried in Pipe *for* Drops per Lineal Foot of .0172 to .0180 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0172	.0174	.0176	.0178	.0180
50'	2	¾	7.83	7.87	7.915	7.97	8.015
	2	1½	15.35	15.43	15.5	15.61	15.7
75'	3	¾	35.14	35.37	35.55	35.77	35.96
100'	4	1	70.8	71.3	71.6	72.0	72.4
	5	1¼	155.7	156.7	157.5	158.4	159.3
125'	5	1½	242	243.5	244.8	246.2	247.6
150'	7	2	490.3	493.3	496	499	501.5
	8	2½	808	812.5	817	822	826
	10	3	1480	1489	1495	1504	1513
	12	3½	2210	2220	2235	2247	2260
	14	4	3120	3140	3160	3178	3194
	15	4½	4249	4274	4299	4323	4347
	17	5	5782	5816	5849	5882	5915
	20	6	9488	9543	9598	9652	9706
	24	7	14055	14136	14218	14296	14378
	27	8	19756	19871	19985	20098	20211
	30	9	26692.9	26847.6	27002.3	27155	27307.6
	34	10	36051.3	36260.2	36469.1	36675.3	36881.5
	40	12	57861.6	58197	58532.3	58863.2	59194.1
	47	14	74936.9	75371.2	75805.5	76234.1	76662.6
	53	16	108034.8	108660.9	109287	109904.9	110522.8
	60	18	148670.1	149531.7	150393.3	151243.5	152093.8
	67	20	197361	198504.8	199648.5	200777.3	201906
	81	24	320781.1	322640.1	324499.1	326333.7	328168.3

Pounds of Steam Carried in Pipe *for* Drops per Lineal Foot of .0182 to .0190 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0182	.0184	.0186	.0188	.0190
50'	2	¾	8.05	8.09	8.14	8.18	8.225
	2	1½	15.78	15.87	15.95	16.05	16.12
75'	3	¾	36.17	36.35	36.55	36.75	36.95
100'	4	1	72.9	73.2	73.6	74.0	74.4
	5	1¼	160.2	161	161.9	162.8	163.7
125'	5	1½	249	250.3	251.7	253	254.3
150'	7	2	504.5	507	510	512.5	515
	8	2½	830	835	840	844	849
	10	3	1522	1530	1536	1546	1555
	12	3½	2275	2285	2298	2310	2322
	14	4	3213	3230	3245	3262	3280
	15	4½	4371	4395	4419	4443	4467
	17	5	5948	5980	6013	6045	6077
	20	6	9760	9814	9867	9920	9973
	24	7	14458	14537	14616	14695	14773
	27	8	20323	20434	20546	20656	20766
	30	9	27458.2	27608.9	27759.5	27908.1	28056.7
	34	10	37084.9	37288.3	37491.8	37692.5	37893.1
	40	12	59520.6	59847.1	60173.6	60195.7	60817.8
	47	14	77085.5	77508.3	77931.2	78348.3	78765.5
	53	16	111132.4	111742	112351.6	112953	113554.4
	60	18	152932.7	153771.8	154610.5	155438.1	156265.7
	67	20	203019.6	204133.3	205247	206335.6	207444.3
	81	24	329978.4	331788.5	333598.6	335384.3	337169.9

Pounds of Steam Carried in Pipe *for* Drops per Lineal Foot of .0192 to .0200 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0192	.0194	.0196	.0198	.0200
50'	2	¾	8.275	8.315	8.36	8.4	8.45
	2	1½	16.20	16.28	16.39	16.47	16.57
75'	3	¾	37.14	37.34	37.54	37.74	37.91
100'	4	1	74.8	75.2	75.6	76.0	76.4
125'	5	1¼	164.5	165.4	166.3	167	167.9
150'	5	1½	255.7	257	258.5	259.7	261
	7	2	518	520.8	523.5	526	528.8
	8	2½	853	857.5	862.5	867	871
	10	3	1562	1570	1579	1586	1594
	12	3½	2333	2345	2360	2370	2380
	14	4	3300	3318	3332	3350	3368
	15	4½	4490	4513	4537	4560	4583
	17	5	6109	6141	6173	6204	6235
	20	6	10024	10077	10129	10180	10232
	24	7	14850	14927	15004	15080	15158
	27	8	20874	20982	21091	21198	21305
	30	9	28203.2	28349.3	28496.3	28640.8	28787.4
	34	10	38091.1	38289	38486.9	38682.1	38877.3
	40	12	61135.5	61453.2	61770.9	62084.1	62397.4
	47	14	79176.9	79588.3	79999.8	80405.5	80811.3
	53	16	114147.5	114740.7	115333.8	115918.7	116503.6
	60	18	157082	157898.2	158714.5	159519.4	160324.3
	67	20	208527.8	209611.4	210695	211763.5	212832
	81	24	338931.1	340692.3	342453.5	344190.2	345926.9

Pounds of Steam Carried in Pipe *for* Drops per Lineal Foot of .0205 to .0225 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0205	.0210	.0215	.0220	.0225
50'	2	¾	8.55	8.63	8.75	8.85	8.95
	2	1½	16.76	16.96	17.15	17.36	17.56
75'	3	¾	38.38	38.86	39.3	39.76	40.23
100'	4	1	77.25	78.25	79.2	80.1	81.0
125'	5	1¼	170	172	174	176.2	178
150'	5	1½	264.3	267.5	270.6	273.8	277
	7	2	535.5	542	548	554.5	561
	8	2½	882	893	903	914	924
	10	3	1614	1635	1654	1672	1692
	12	3½	2415	2440	2470	2500	2528
	14	4	3410.7	3451.2	3491.6	3532.1	3573.6
	15	4½	4640	4695	4751	4806	4861.1
	17	5	6314	6389	6464	6539	6614
	20	6	10360	10483	10606	10729	10852
	24	7	15347	15529	15712	15894	16076
	27	8	21573	21829	22085	22341	22597
	30	9	29147.7	29493.7	29839.7	30185.8	30531.8
	34	10	39366.6	39834	40301.3	40768.7	41236
	40	12	63182.8	63932.8	64682.9	65433	66183.1
	47	14	81828.3	82799.8	83771.2	84742.6	85716
	53	16	117970	119370.5	120771	122171.5	123572
	60	18	162342.2	164269.5	166196.7	168124	170054.2
	67	20	215510.8	218069.3	220627.7	223186.2	225744.6
	81	24	350281	354439.3	358597.7	362756.1	366914.4

Economical Steam Pipe Sizes

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0230 to .0250 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0230	.0235	.0240	.0245	.0250
50′	2	¾	9.05	9.15	9.24	9.34	9.435
75′	2	1½	17.73	17.93	18.13	18.32	18.5
	3	¾	40.65	41.1	41.54	41.96	42.4
100′	4	1	81.9	82.8	83.7	84.5	85.4
125′	5	1¼	180	182	184	185.8	187.7
150′	5	1½	280	283	286	289	292
	7	2	567	573.5	579	585	591
	8	2½	934	944	954	964	974
	10	3	1710	1730	1748	1765	1783
	12	3½	2555	2579	2610	2635	2662
	14	4	3610.7	3651.2	3689.3	3727.4	3765.5
	15	4½	4912.9	4968.1	5019.9	5071.7	5123.6
	17	5	6684	6759	6830	6900	6971
	20	6	10968	11091	11207	11323	11439
	24	7	16247	16430	16601	16773	16944
	27	8	22838	23095	23336	23577	23818
	30	9	30857.5	31203.5	31529.2	31854.8	32180.5
	34	10	41675.9	42143.2	42583	43022.9	43462.7
	40	12	66889	67639.1	68345	69051	69757
	47	14	86628.3	87599.7	88514	89428.3	90342.6
	53	16	124890.1	126290.5	127608.6	128926.7	130244.8
	60	18	171865.1	173792.3	175606.2	177420.1	179234
	67	20	228152.5	230711	233118.9	235526.9	237934.8
	81	24	370828.2	374986.5	378900.3	382814.1	386727.8

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0305 to .0325 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0305	0310	.0315	0320	0325
75′	2	¾	10.42	10.5	10.59	10.68	10.75
	2	1½	20.42	20.6	20.75	20.92	21.08
100′	3	¾	46.81	47.2	47.6	47.97	48.32
125′	4	1	94.3	95.0	95.9	96.65	97.3
150′	5	1¼	207.3	209	210.8	212.4	214
	5	1½	322.3	325	327.8	330.3	332.6
	7	2	653	658	664	669	674
	8	2½	1075	1084	1093	1102	1110
	10	3	1970	1985	2001	2020	2032
	12	3½	2943	2965	2990	3013	3035
	14	4	4158	4191	4227	4261	4291
	15	4½	5658.3	5703.7	5752.3	5797.7	5839.8
	17	5	7698	7760	7826	7888	7945
	20	6	12632	12734	12842	12943	13037
	24	7	18712	18862	19023	19173	19313
	27	8	26303	26514	26740	26951	27147
	30	9	35539	35824	36129.3	36414.2	36678.9
	34	10	47998.7	48383.6	48795.9	49180.8	49538.2
	40	12	77037.1	77654.8	78316.6	78934.3	79507.9
	47	14	99771.1	100571.1	101428.3	102228.3	102971.1
	53	16	143837.8	144991.1	146226.8	147380.2	148451.1
	60	18	197939.6	199526.8	201227.3	202814.4	204286.2
	67	20	262766.7	264873.7	267131.1	269238.1	271194.5
	81	24	427085.4	430512.9	434182.1	437606.6	440786.5

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0380 to .0400 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0380	.0385	.0390	.0395	.0400
75′	2	¾	11.63	11.7	11.78	11.85	11.93
	2	1½	22.8	22.95	23.10	23.23	23.4
100′	3	¾	52.27	52.6	52.92	53.38	53.63
125′	4	1	105.2	106	106.6	107.3	108
150′	5	1¼	231.5	233	234.4	236	237.5
	5	1½	359.8	362.2	364.3	367	369.2
	7	2	729	734	738	743	748
	8	2½	1200	1208	1215	1224	1232
	10	3	2200	2212	2228	2240	2255
	12	3½	3285	3310	3330	3350	3370
	14	4	4642	4673	4701	4732	4763
	15	4½	6316.2	6358.3	6397.2	6439.3	6481.5
	17	5	8593	8651	8704	8761	8818
	20	6	14101	14195	14264	14358	14470
	24	7	20888	21027	21156	21295	21435
	27	8	29362	29557	29738	29934	30130
	30	9	39671	39935.6	40179.8	40444.5	40709.1
	34	10	53579.3	53936.7	54266.6	54624	54981.4
	40	12	85993.9	86567.5	87096.9	87670.5	88244.1
	47	14	111371.1	112114	112799.7	113542.5	114285.4
	53	16	160561.2	161632.1	162620.7	163691.7	164762.6
	60	18	220953.2	222427	223787.4	225261.2	226735
	67	20	293317.5	295273.9	297079.9	299036.4	300992.8
	81	24	476744.2	479924.1	482859.4	486039.3	489219.3

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0255 to .0275 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0255	0260	.0265	.0270	0275
75′	2	¾	9.525	9.625	9.72	9.81	9.89
	2	1½	18.67	18.86	19.05	19.22	19.4
100′	3	¾	42.8	43.23	43.65	44.05	44.45
125′	4	1	86.2	87.1	87.95	88.75	89.6
150′	5	1¼	189.5	191.4	193.3	195.1	196.9
	5	1½	294.6	297.6	300.5	303.3	306
	7	2	597	603	609	614	620
	8	2½	983	993	1003	1012	1021
	10	3	1800	1818	1838	1853	1870
	12	3½	2690	2717	2742	2770	2795
	14	4	3801	3839	3877	3913	3948
	15	4½	5172.2	5224.1	5275.9	5324.5	5373.1
	17	5	7037	7108	7178	7244	7310
	20	6	11547	11663	11779	11887	11996
	24	7	17105	17276	17448	17609	17769
	27	8	24044	24285	24526	24752	24978
	30	9	32485.8	32811.5	33137.2	33442.5	33747.8
	34	10	43875.1	44315	44754.8	45167.2	45579.5
	40	12	70418.8	71124.7	71830.7	72492.5	73154.4
	47	14	91199.7	92114	93028.3	93885.4	94742.6
	53	16	131480.6	132798.7	134116.8	135352.5	136588.2
	60	18	180934.5	182748.4	184562.2	186262.8	187963.3
	67	20	240192.3	242600.2	245008.1	247265.6	249523
	81	24	390397	394310.7	398224.5	401893.6	405562.7

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0330 to .0350 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			0330	.0335	.0340	.0345	.0350
75′	2	¾	10.83	10.92	11.0	11.08	11.16
	2	1½	21.25	21.4	21.6	21.7	21.9
100′	3	¾	48.7	49.08	49.45	49.8	50.12
125′	4	1	98.1	98.85	99.6	100.3	101
150′	5	1¼	215.7	217.3	219	220.5	222
	5	1½	335.2	338	340.3	342.7	345.2
	7	2	679	684	689.7	694.5	699.5
	8	2½	1118	1127	1135	1143	1152
	10	3	2050	2062	2080	2093	2110
	12	3½	3060	3085	3110	3130	3150
	14	4	4325	4358	4392	4422	4453
	15	4½	5885.2	5930.5	5975.9	6018.0	6060.2
	17	5	8007	8069	8130	8188	8245
	20	6	13139	13240	13341	13435	13529
	24	7	19463	19613	19763	19902	20041
	27	8	27360	27569	27780	27976	28171
	30	9	36963.8	37248.8	37533.7	37798.4	38063
	34	10	49923.1	50307.9	50692.8	51050.2	51407.6
	40	12	80125.5	80743.3	81361.1	81934.6	82508.2
	47	14	103771.1	104571.1	105371.1	106114	106856.8
	53	16	149604.5	150757.8	151911.1	152982.1	154053.1
	60	18	205875.3	207462.5	209049.6	210523.4	211997.2
	67	20	273301.5	275408.4	277515.4	279471.8	281428.3
	81	24	444211.1	447635.6	451060.1	454240.1	457420

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0405 to .0425 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0405	.0410	.0415	.0420	.0425
75′	2	¾	12.0	12.09	12.15	12.23	12.3
100′	2	1½	23.5	23.7	23.8	24.0	24.13
125′	3	¾	53.93	54.3	54.63	54.93	55.27
150′	4	1	108.6	109.3	110	110.6	111.3
	5	1¼	239	240.4	241.9	243.3	244.8
	5	1½	371.5	374	376	378.3	380.5
	7	2	752.5	757	761	766	771
	8	2½	1238	1247	1254	1262	1269
	10	3	2270	2283	2297	2310	2325
	12	3½	3390	3410	3430	3450	3470
	14	4	4792	4823	4851	4880	4908
	15	4½	6520.4	6562.5	6601.4	6640	6679
	17	5	8871	8928	8981	9034	9087
	20	6	14557	14651	14738	14824	14911
	24	7	21563	21703	21831	21960	22088
	27	8	30311	30507	30687	30868	31049
	30	9	40953.3	41217.9	41462.2	41706.4	41950.7
	34	10	55311.2	55668.6	55998.5	56328.4	56658.3
	40	12	88773.6	89347.2	89876.6	90406.1	90935.5
	47	14	114971.1	115714	116399.7	117085.4	117771.1
	53	16	165751.2	166822.2	167810.7	168799.3	169787.9
	60	18	228095.4	229569.1	230929.5	232290	233650.4
	67	20	302798.8	304755.2	306561.2	308367.1	310173.1
	81	24	492154.6	495334.5	498269.8	501205.1	504140.4

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0280 to .0300 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0280	0285	0290	0295	0300
75′	2	¾	9.99	10.07	10.15	10.23	10.33
	2	1½	19.57	19.75	19.9	20.1	20.27
100′	3	¾	44.7	45.26	45.66	46.05	46.44
125′	4	1	90.4	91.2	92.0	92.8	93.6
150′	5	1¼	198.6	200.5	202.2	203.9	205.7
	5	1½	308.8	311.6	314.4	316	319.8
	7	2	625.5	631	637	642	648
	8	2½	1030	1039	1048	1057	1066
	10	3	1886	1904	1922	1934	1953
	12	3½	2820	2845	2870	2895	2920
	14	4	3984	4020	4056	4089	4125
	15	4½	5421.7	5470.4	5519	5564.3	5613
	17	5	7376	7443	7509	7571	7637
	20	6	12104	12213	12321	12422	12531
	24	7	17930	18091	18252	18402	18562
	27	8	25204	25430	25656	25867	26093
	30	9	34053.1	34358.4	34663.8	34948.7	35254
	34	10	45991.9	46404.3	46816.6	47201.5	47613.8
	40	12	73816.2	74478	75139.8	75757.6	76419.4
	47	14	95599.7	96456.9	97314	98114	98971.1
	53	16	137823.9	139059.7	140295.4	141448.7	142684.4
	60	18	189663.8	191364.3	193064.8	194651.9	196352.5
	67	20	251780.5	254037.9	256295.4	258402.3	260659.8
	81	24	409231.9	412901	416570.2	419994.7	423663.9

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0355 to .0375 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			0355	.0360	.0365	.0370	.0375
75′	2	¾	11.25	11.32	11.4	11.47	11.55
	2	1½	22.05	22.2	22.35	22.5	22.65
100′	3	¾	50.5	50.65	50.97	51.57	51.9
125′	4	1	101.7	102.5	103.1	103.8	104.6
150′	5	1¼	223.7	225.3	226.8	228.3	230
	5	1½	347.8	350.2	352.6	355	357.4
	7	2	704.5	709	714	719	724
	8	2½	1160	1168	1176	1184	1192
	10	3	2125	2140	2155	2170	2185
	12	3½	3178	3195	3220	3240	3260
	14	4	4487	4518	4549	4580	4611
	15	4½	6105.5	6147.7	6189.8	6231.9	6274.1
	17	5	8307	8364	8421	8479	8536
	20	6	13631	13725	13819	13913	14007
	24	7	20191	20331	20470	20609	20749
	27	8	28382	28578	28774	28970	29166
	30	9	38347.9	38612.5	38877.2	39141.8	39406.4
	34	10	51792.4	52149.8	52507.2	52864.6	53221.9
	40	12	83125.9	83699.5	84273.1	84846.7	85420.3
	47	14	107656.8	108399.7	109142.5	109885.4	110628.3
	53	16	155206.4	156277.4	157348.3	158419.3	159490.2
	60	18	213584.3	215058.1	216531.9	218005.7	219479.4
	67	20	283535.2	285491.7	287448.1	289404.6	291361
	81	24	460844.5	464024.5	467204.4	470384.3	473564.2

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0430 to .0450 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0430	.0435	.0440	.0445	0450
75′	2	¾	12.38	12.45	12.5	12.53	12.65
100′	2	1½	24.25	24.4	24.52	24.6	24.8
125′	3	¾	55.6	55.9	56.25	56.55	56.85
150′	4	1	112	112.6	113.3	113.85	114.5
	5	1¼	246.3	247.6	249	250.5	251.9
	5	1½	383	385	387	389.3	391.5
	7	2	776	780	784	788.5	793
	8	2½	1278	1284	1292	1298	1306
	10	3	2340	2350	2365	2378	2390
	12	3½	3498	3515	3530	3550	3570
	14	4	4939	4966	4994	5023	5051
	15	4½	6721	6757	6796	6835	6873
	17	5	9144	9193	9246	9299	9352
	20	6	15005	15085	15172	15259	15345
	24	7	22228	22346	22476	22603	22731
	27	8	31245	31410	31591	31772	31953
	30	9	42215.3	42439.2	42683.5	42927.7	43172
	34	10	57015.7	57318.1	57648	57977.8	58307.7
	40	12	91509.1	91994.5	92523.9	93053.4	93582
	47	14	118514	119142.5	119828.2	120513.9	121199.7
	53	16	170858.8	171765	172753.6	173742.2	174730.8
	60	18	235124.1	236371.2	237731.6	239092	240452.4
	67	20	312129.5	313785	315591	317396.9	319202.9
	81	24	507320.4	510011.1	512946.4	515881.7	518817

Economical Steam Pipe Sizes

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0455 to .0475 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			0455	0460	0465	0470	0475
75′	2	¾	12.7	12.8	12.83	12.95	13.0
100′	2	1	24.92	25.1	25.2	25.4	25.5
125′	3	1¼	57.2	57.5	57.8	58.13	58.43
150′	4	1	115.15	115.8	116.4	117.15	117.65
	5	1¼	253.3	254.6	256	257.4	258.8
	5	1½	393.7	396	398	400	402.3
	7	2	798	802	806	811	815
	8	2½	1315	1322	1328	1335	1343
	10	3	2408	2420	2430	2442	2457
	12	3½	3595	3615	3630	3650	3670
	14	4	5080	5106	5135	5163	5189
	15	4½	6012	6048	6087	7026	7061
	17	5	9405	9453	9506	9559	9607
	20	6	15422	15502	15589	15675	15755
	24	7	22860	22978	23107	23235	23353
	27	8	32134	32299	32480	32661	32927
	30	9	43416.2	43640.1	43884.4	44128.6	44352.5
	34	10	58637.6	58940	59260.9	59599.8	59903.2
	40	12	94112.3	94597.7	95127.1	95656.6	96142
	47	14	121885.4	122513.9	123199.7	123885.4	124513.9
	53	16	175719.3	176623.5	177614.1	178602.7	179508.9
	60	18	240679.2	243059.9	244420.3	245780.7	247027.7
	67	20	321008.9	322664.9	324470.1	326276.5	327931.8
	81	24	521752.3	524443	527378.4	530313.7	533004.4

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0560 to .0600 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			0560	.0570	.0580	.0590	.0600
75′	2	¾	14.13	14.25	14.36	14.5	14.62
100′	2	1	27.65	27.95	28.18	28.4	28.65
125′	3	1¼	63.43	64.0	64.58	65.13	65.68
150′	4	1	127.8	128.8	130	131.2	132.3
	5	1¼	281	283.5	286	288.5	290.8
	5	1½	436.5	440.5	444.6	448.5	452
	7	2	885	893	900	908	916
	8	2½	1458	1470	1483	1496	1508
	10	3	2668	2690	2713	2740	2763
	12	3½	3985	4020	4060	4090	4130
	14	4	5635	5685	5735	5785	5832
	15	4½	7667	7735	7803	7871	7936
	17	5	10432	10524	10617	10709	10798
	20	6	17118	17269	17422	17574	17718
	24	7	25357	25582	25807	26032	26247
	27	8	35644	35960	36276	36593	36894
	30	9	48158.8	48586.3	49013.7	49441.2	49848.3
	34	10	65043	65620.3	66197.6	66774.9	67324.7
	40	12	104392.8	105319.3	106245.9	107172.5	108054.9
	47	14	135199.6	136399.6	13 599.6	138799.6	139942.5
	53	16	194914.2	196644.2	198374.2	200104.2	201751.8
	60	18	268227.5	270608.2	272988.9	275369.6	277637
	67	20	356074.5	359235.4	362395	365555.8	368563.7
	81	24	578746.4	583883.2	589020	594156.8	599049

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0710 to .0750 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0710	.0720	.0730	.0740	.0750
100′	2	¾	15.9	16.0	16.12	16.22	16.32
125′	2	1	31.2	31.4	31.6	31.8	32.0
150′	3	1¼	71.45	71.95	72.42	72.92	73.42
	4	1	143.9	144.85	145.85	146.9	147.9
	5	1¼	316.3	318.6	320.8	323.0	325.0
	5	1½	492.0	495.3	498.7	502.0	505.5
	7	2	996.0	1003	1010	1017	1024
	8	2½	1642	1654	1664	1675	1686
	10	3	3005	3026	3046	3068	3088
	12	3½	4490	4520	4550	4585	4615
	14	4	6345	6390	6433	6478	6521
	15	4½	8633	8695	8753	8814	8873
	17	5	11746	11830	11909	11993	12072
	20	6	19274	19411	19542	19679	19809
	24	7	28551	28755	28948	29151	29344
	27	8	40133	40419	40690	40977	41248
	30	9	54224.5	54611.2	54977.6	55364.3	55730.7
	34	10	73235.2	73757.5	74252.3	74774.7	75269.5
	40	12	117541.2	118379.5	119173.7	120012.0	120806.2
	47	14	152228.2	153313.9	154342.4	155428.1	156456.7
	53	16	219463.8	221029.1	222511.9	224077.2	225560.1
	60	18	302011.0	304165.0	306205.6	308359.6	310400.2
	67	20	400922.2	403782.2	406490.6	409350.0	412059.2
	81	24	651640.1	656287.6	660690.6	665338.2	669741.2

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0480 to .0500 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0480	0485	.0490	0495	.0500
75′	2	¾	13.07	13.15	13.2	13.25	13.3
100′	2	1	25.6	25.75	25.85	26.0	26.15
125′	3	1¼	58.75	59.07	59.33	59.64	59.95
150′	4	1	118.3	118.9	119.5	120.15	120.75
	5	1¼	260.3	261.4	262.7	264.2	265.4
	5	1½	404.5	406.5	408.5	410.8	412.7
	7	2	820	824	828	832	836
	8	2½	1350	1355	1364	1370	1378
	10	3	2472	2480	2496	2308	2522
	12	3½	3690	3710	3730	3750	3770
	14	4	5218	5244	5270	5297	5325
	15	4½	7100	7136	7172	7207	7246
	17	5	9660	9709	9757	9806	9859
	20	6	15552	15931	16011	16091	16177
	24	7	23482	23600	23717	23835	23964
	27	8	33007	33173	33339	33504	33685
	30	9	44596.8	44820.7	45044.6	45268.5	45512.7
	34	10	60232.1	60534.5	60836.9	61139.3	61469.2
	40	12	96671.4	97156.8	97642.1	98127.4	98656.9
	47	14	125199.6	125828.2	126456.8	127085.4	127771.1
	53	16	180497.5	181403.7	182309.9	183216	184204.6
	60	18	248388.1	249635.2	250882.2	252129.3	253489.7
	67	20	329737.1	331393.1	333048.4	334704	336510.1
	81	24	535939.7	538630.4	541321.1	544011.8	546947.1

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0610 to .0650 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0610	.0620	0630	.0640	.0650
100′	2	¾	14.73	14.85	14.98	15.1	15.21
125′	2	1	28.9	29.15	29.4	29.6	29.8
150′	3	1¼	66.2	66.8	67.3	67.85	68.35
	4	1	133.35	134.5	135.6	136.65	137.65
	5	1¼	293.2	295.7	298	300.5	302.7
	5	1½	455.8	459.8	463.3	467	470.5
	7	2	923	931	939	946	953
	8	2½	1520	1539	1545	1558	1570
	10	3	2783	2810	2830	2853	2872
	12	3½	4160	4195	4230	4265	4295
	14	4	5880	5930	5978	6025	6071
	15	4½	8001	8069	8134	8199	8260
	17	5	10886	10979	11067	11155	11239
	20	6	17863	18015	18160	18304	18442
	24	7	26461	26686	26900	27115	27318
	27	8	37195	37512	37813	38114	38401
	30	9	50255.3	50682.8	51089.9	51497	51883.7
	34	10	67874.5	68451.8	69001.6	69551.4	70073.7
	40	12	108937.4	109863.9	110746.4	111628.8	112467.1
	47	14	141085.3	142285.3	143428.2	144571	145656.7
	53	16	203399.5	205129.5	206777.1	208424.7	209990
	60	18	279904.3	282285	284552.4	286819.7	288973.7
	67	20	371575.2	374736.1	377746	380756.1	383615.9
	81	24	603941.2	609078	613970.2	618862.4	623509.9

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0760 to .0800 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0760	.0770	.0780	.0790	.0800
100′	2	¾	16.42	16.55	16.65	16.77	16.87
125′	2	1	32.2	32.45	32.7	32.9	33.1
150′	3	1¼	73.9	74.4	74.87	75.35	75.85
	4	1	148.8	149.85	150.8	151.8	152.8
	5	1¼	327.2	329.5	331.6	333.8	335.9
	5	1½	509.0	512.5	515.3	518.8	522.0
	7	2	1030	1038	1044	1050	1057
	8	2½	1697	1709	1720	1730	1742
	10	3	3108	3130	3150	3170	3190
	12	3½	4645	4675	4705	4735	4765
	14	4	6564	6609	6649	6692	6735
	15	4½	8931	8993	9048	9106	9164
	17	5	12151	12235	12310	12390	12469
	20	6	19940	20077	20200	20330	20461
	24	7	29537	29741	29923	30116	30309
	27	8	41519	41805	42061	42333	42604
	30	9	56097.1	56483.8	56829.9	57196.2	57562.6
	34	10	75764.3	76286.6	76754.0	77248.8	77743.7
	40	11	121600.4	122438.7	123188.8	123983.0	124777.2
	47	14	157485.3	158571.0	159542.4	160571.0	161599.6
	53	16	227042.9	228608.2	230008.6	231491.5	232974.4
	60	18	312440.8	314594.8	316522.0	318582.6	320603.2
	67	20	414767.6	417637.8	420186.0	422894.9	425603.9
	81	24	674144.1	678791.7	682950.1	687353.1	691756.0

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0510 to .0550 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0510	.0520	0530	.0540	0550
75′	2	¾	13.47	13.61	13.75	13.87	14.00
100′	2	1	26.4	26.7	26.9	27.2	27.4
125′	3	1¼	60.55	61.15	61.7	62.28	62.87
150′	4	1	121.9	123.15	124.3	125.4	126.65
	5	1¼	268.2	270.7	273.3	275.8	278.5
	5	1½	417	421	425	429	433
	7	2	844	853	861	869	877
	8	2½	1392	1405	1418	1432	1445
	10	3	2546	2570	2594	2620	2643
	12	3½	3805	3840	3875	3915	3950
	14	4	5378	5430	5482	5532	5585
	15	4½	7317	7389	7460	7528	7599
	17	5	9956	10052	10149	10242	10339
	20	6	16337	16496	16655	16806	16966
	24	7	24200	24436	24671	24896	25132
	27	8	34017	34348	34680	34996	35327
	30	9	45960.5	46408.3	46856.1	47283.6	47731.4
	34	10	62074	62678.8	63283.5	63860.9	64465.6
	40	12	99627.6	100598.3	101569	102496.5	103466.2
	47	14	129028.2	130285.4	131542.5	132742.5	133999.6
	53	16	186017	187829.4	189641.8	191371.8	193184.2
	60	18	255983.8	258477.9	260971.9	263352.7	265846.7
	67	20	339821	343131.7	346442.7	349603.2	352914.1
	81	24	552328.5	557710	563091.4	568228.2	573609.6

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0660 to .0700 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			0660	0670	.0680	.0690	.0700
100′	2	¾	15.33	15.45	15.55	15.67	15.77
125′	2	1	30.05	30.3	30.45	30.7	30.95
150′	3	1¼	68.9	69.4	69.9	70.4	70.92
	4	1	138.75	139.8	140.8	141.8	142.85
	5	1¼	305	307.4	309.6	311.8	314
	5	1½	474.2	478	481.3	485	488.5
	7	2	961	968	974	982	989
	8	2½	1583	1594	1605	1617	1630
	10	3	2896	2918	2940	2961	2985
	12	3½	4330	4360	4390	4425	4460
	14	4	6118	6164	6209	6254	6299
	15	4½	8325	8387	8448	8510	8571
	17	5	11327	11411	11495	11578	11662
	20	6	18587	18724	18862	19000	19137
	24	7	27533	27736	27940	28144	28347
	27	8	38702	38988	39274	39561	39847
	30	9	52299.8	52677.5	53064.3	53451	53837.7
	34	10	70623.6	71145.9	71668.2	72190.5	72712.9
	40	12	113349.6	114187.9	115026.2	115864.5	116702.8
	47	14	146799.6	147885.3	148971	150056.7	151142.4
	53	16	211637.6	213202.9	214768.1	216333.3	217898.6
	60	18	291241.1	293395	295549	297703	299857
	67	20	386625.3	389484.6	392344.2	395203.6	398063.3
	81	24	628402.1	633049.7	637697.3	642344.9	646992.5

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0810 to .0850 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0810	.0820	.0830	.0840	.0850
100′	2	¾	17.00	17.10	17.20	17.26	17.35
125′	2	1	33.30	33.50	33.70	33.90	34.10
150′	3	1¼	76.30	76.80	77.30	77.75	78.20
	4	1	153.7	154.6	155.6	156.0	157.5
	5	1¼	338.0	340.0	342.0	344.0	346.0
	5	1½	525.0	528.5	532.0	535.0	538.0
	7	2	1064	1070	1077	1084	1090
	8	2½	1753	1765	1774	1785	1795
	10	3	3210	3230	3250	3270	3288
	12	3½	4800	4825	4855	4885	4912
	14	4	6778	6819	6861	6902	6949
	15	4½	9223	9278	9336	9391	9446
	17	5	12548	12623	12703	12778	12853
	20	6	20591	20714	20844	20967	21090
	24	7	30502	30684	30877	31059	31241
	27	8	42875	43131	43402	43658	43914
	30	9	57929.0	58275.0	58641.4	58987.5	59333.5
	34	10	78238.5	78705.8	79200.7	79668.0	80135.3
	40	12	125571.4	126321.5	127115.7	127865.7	128615.8
	47	14	162628.1	163599.6	164628.1	165599.6	166571.0
	53	16	234457.2	235857.7	237340.6	238741.1	240141.6
	60	18	322643.9	324571.1	326611.7	328539.0	330468.2
	67	20	428312.8	430871.2	433580.2	436138.6	438696.9
	81	24	696159.0	700317.4	704720.4	708878.7	713037.5

Economical Steam Pipe Sizes

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0860 to .0900 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0860	.0870	0880	.0890	.0900
	2	¾	17.5	17.6	17.7	17.83	17.9
100′	2	1	34.3	34.5	34.7	34.9	35.1
125′	3	¾	78.6	79.1	79.5	80.0	80.45
150′	4	1	158.3	159.3	160.2	161	162
	5	1¼	348	350	352	354	356.3
	5	1½	541.5	544.5	547.5	550.5	554
	7	2	1096	1103	1108	1115	1122
	8	2½	1806	1814	1826	1837	1848
	10	3	3308	3325	3345	3365	3385
	12	3½	4940	4970	5000	5015	5028
	14	4	6853	7023	7064	7104	7145
	15	4½	9501	9557	9612	9667	9722
	17	5	12927	13002	13077	13152	13227
	20	6	21213	21336	21459	21582	21705
	24	7	31423	31605	31788	31970	32152
	27	8	44171	44427	44683	44939	45195
	30	9	59679.5	60025.5	60371.6	60717.6	61063.6
	34	10	80602.7	81070	81537.4	82004.7	82472.1
	40	12	129365.9	130116	130866	131616.1	132366.2
	47	14	167542.4	168513.8	169485.3	170456.7	171428.1
	53	16	241542	242942.5	244343	245743.5	247144
	60	18	332393.5	334320.7	336248	338175.2	340102.5
	67	20	441255.1	443814.2	446372.1	448930.2	451489.3
	81	24	717195.4	721353.8	725512.2	729670.5	733828.9

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .1250 to .2250 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.1250	1500	1750	.2000	.2250
125′	2	¾	21.09	23.1	24.95	26.7	28.3
150′	2	1	41.35	45.3	49.0	52.3	55.5
	3	¾	94.8	103.8	112.1	119.85	127.15
	4	1	190.8	209.2	225.7	241.5	256.2
	5	1¼	420	460	496.5	531	563
	5	1½	652.5	715	772	825	875
	7	2	1322	1448	1564	1672	1773
	8	2½	2178	2386	2577	2756	2922
	10	3	3988	4370	4720	5045	5255
	12	3½	5960	6525	6880	7540	7985
	14	4	8419	9224	9962	10651	11296
	15	4½	11456	12551	13556	14492	15371
	17	5	15586	17076	18443	19719	20912
	20	6	25576	28021	30264	32355	34316
	24	7	37886	41508	44831	47928	50832
	27	8	53255	58347	63017	67371	71463
	30	9	71953.3	78833.1	85143.1	91035.5	96541.6
	34	10	97179.6	106471.4	114993.6	122938.4	130388.3
	40	12	155971.5	170884.8	184562.6	197313.9	209271
	47	14	201999.5	221313.7	239027.9	255542.2	271027.9
	53	16	291218	319062.9	344601.1	368409.3	390734.6
	60	18	400754.1	439072.3	474216.2	506979.4	537702
	67	20	532004.8	582872.6	629526.5	673020	713804.5
	81	24	864695.1	947373.1	1023202.1	1093894.3	1160183.5

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .5000 to 1.0000 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot					
			.5000	.6000	.7000	.8000	.9000	1.0000
	2	¾	42.2	46.2	49.85	53.35	56.6	59.7
	2	1	82.7	90.7	98.0	104.6	111	11.7
	3	¾	189.4	207.6	224.3	239.7	254.3	268.16
	4	1	378.4	418.4	452	483	512.5	540
	5	1¼	839.5	920	994	1062	1126.5	1187
	5	1½	1305	1429	1544	1650	1751	1845
	7	2	2643	2896	3128	3344	3540	3738
	8	2½	4355	4775	5150	5501	5775	6159
	10	3	7980	8740	9440	10090	10700	11279
	12	3½	11920	13050	14000	15050	16000	16850
	14	4	16841	18449	19928	21302	22655	23817
	15	4½	22915	25102	27115	28985	30745	32407
	17	5	31177	34153	36891	39435	41829	44091
	20	6	51159	56042	60535	64710	68638	72349
	24	7	75782	83016	89672	95856	101675	107173
	27	8	106524	116693	126049	134741	142921	150649
	30	9	143927	157666.3	170306.5	182051.1	193103.6	203545.5
	34	10	194386.7	212942.9	230014.7	245876.8	260804.2	274907
	40	12	311987.1	341769.6	369169.4	394627.8	418586.1	441220.7
	47	14	404056.1	442627.5	478113.1	511084.4	542112.9	571427.2
	53	16	582518.4	638125.8	689284.6	736818.6	781551.7	823813.3
	60	18	801621.5	878144.6	948545.8	1013958.9	1075517.4	1133675
	67	20	1064160.2	1165745.3	1259203.6	1346040	1427759.6	1504964.3
	81	24	1729634.8	1894746.3	2046648.9	2187788.7	2320611	2446096

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0910 to .0950 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0910	.0920	.0930	.0940	.0950
	2	¾	17.98	18.1	18.2	18.3	18.4
100′	2	1	35.3	35.45	35.7	35.9	36.1
125′	3	¾	80.9	81.33	81.75	82.2	82.62
150′	4	1	162.8	163.8	164.7	165.5	166.4
	5	1¼	358	360.2	362	364	366
	5	1½	556.8	560	563	566	569
	7	2	1127	1134	1140	1146	1153
	8	2½	1856	1868	1877	1888	1899
	10	3	3400	3422	3440	3458	3479
	12	3½	5085	5115	5140	5170	5190
	14	4	7183	7223	7262	7300	7340
	15	4½	9774	9829	9881	9932	9988
	17	5	13298	13373	13443	13514	13589
	20	6	21821	21944	22059	22175	22298
	24	7	32323	32506	32677	32849	33031
	27	8	45436	45692	45933	46174	46430
	30	9	61389.3	61735.3	62061	62386.7	62732.7
	34	10	82911.9	83379.2	83819.1	84259	84726.3
	40	12	133072.1	133822.2	134528.2	135234.1	135984.2
	47	14	172342.4	173313.8	174238.1	175142.4	176113.8
	53	16	248462.1	249862.6	251180.7	252498.8	253899.2
	60	18	341916.3	343843.6	345657.5	347471.3	349398.6
	67	20	453897.2	456455.6	458863.6	461271.5	463829.9
	81	24	737742.7	741901	745814.8	749728.5	753886.9

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .2500 to .3500 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.2500	.2750	.3000	.3250	.3500
	2	¾	29.8	31.3	32.65	34.0	35.27
	2	1	58.5	61.4	64.0	66.7	69.2
	3	¾	134	140.5	146.6	152.7	158.3
	4	1	270	283	295.7	307.8	319.4
	5	1¼	594	623	650	677	702
	5	1½	923	969	1010	1052	1092
	7	2	1870	1962	2047	2130	2212
	8	2½	3080	3230	3370	3510	3680
	10	3	5570	5920	6175	6430	6675
	12	3½	8430	8840	9225	9600	9960
	14	4	11908	12490	13045	13573	14087
	15	4½	16203	16994	17749	18472	19172
	17	5	22046	23121	24149	25132	26084
	20	6	36175	37940	39626	41239	42802
	24	7	53587	56202	58699	61089	63404
	27	8	75325	79001	82511	85870	89124
	30	9	101772.7	106739.2	111481.8	116020.9	120417.5
	34	10	137453.5	144161.2	150566.5	156697	162634.9
	40	12	220610.3	231376.1	241656.6	251495.8	261026.2
	47	14	285713.6	299656.4	312970.6	325713.5	338056.3
	53	16	411906.6	432007.7	451202.5	469573.6	487368
	60	18	566837.5	594499.1	620913.7	646194.7	670682.1
	67	20	752482.1	789203.2	824268.9	857829.6	890336.8
	81	24	1223048.2	1282733	1339727	1394275	1447110.6

CONVERSION FACTOR TABLES for Higher Pressures and Temperatures (not to exceed 750° F.) ½ to 100 Lbs.

Factors for Conversion* of Low Pressure Steam Pipe Size Tables to Make Them Applicable to Higher Pressures and Temperatures

Pres. Lb. Gage	Saturated Steam	Superheat—F.								
		20	50	100	150	200	250	300	350	400
½	1.00	.99	.96	.93	.90	.87	.85	.83	.81	.79
5	1.15	1.13	1.10	1.07	1.03	1.00	.97	.95	.93	.90
10	1.27	1.25	1.23	1.19	1.15	1.12	1.09	1.06	1.03	1.01
15	1.39	1.37	1.34	1.29	1.25	1 22	1,18	1.15	1.13	1.10
20	1.49	1.47	1.44	1.39	1.35	1.31	1.27	1.24	1.21	1.18
25	1.59	1.57	1.53	1.48	1.43	1.39	1.36	1.31	1.28	1.25
30	1.69	1.66	1.62	1.57	1.52	1.48	1.44	1.40	1.37	1.34
35	1.77	1.74	1.71	1.65	1.60	1.55	1.51	1.47	1.44	1.40
40	1.85	1.82	1.79	1.72	1 67	1.62	1.58	1.54	1.50	1.47
45	1.93	1.90	1.86	1.80	1.74	1.69	1.65	1.61	1.57	1.53
50	2.01	1.98	1.93	1.87	1.81	1.76	1 71	1.67	1.63	1.59
60	2.14	2.11	2.06	1.99	1.92	1.88	1.83	1.78	1.74	1.70
70	2.28	2.24	2.19	2.12	2.05	1.99	1.94	1.89	1.85	1.81
80	2.40	2.36	2.31	2.23	2.16	2.10	2.05	1.99	1.95	1.90
90	2.51	2.47	2.42	2.34	2.27	2.20	2.14	2.09	2.05	2.00
100	2.63	2.58	2.53	2.44	2.37	2.30	2.24	2.18	2.13	2.08

*At increased pressures and temperatures steam pipe will carry load as indicated in low pressure table times (x) conversion factor as above with drop per lineal ft. as indicated in low pressure table.

To simplify the use of above tables it is suggested that the steam loads on the job in question be corrected by dividing same by proper factor above. Then apply corrected load directly to low pressure table.

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .0960 to .1000 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.0960	.0970	.0980	.0990	.1000
	2	¾	18.47	18.55	18.67	18.77	18.87
100′	2	1	36.22	36.45	36.6	36.8	37.0
125′	3	¾	83.1	83.5	83.95	84.35	84.8
150′	4	1	167.3	168.25	169	169.8	170.8
	5	1¼	368	370	371.8	373.5	375.5
	5	1½	572	575	578	581	584
	7	2	1158	1165	1170	1176	1182
	8	2½	1907	1918	1927	1937	1947
	10	3	3495	3512	3530	3548	3568
	12	3½	5220	5250	5275	5300	5330
	14	4	7378	7416	7454	7493	7531
	15	4½	10039	10091	10143	10195	10247
	17	5	13659	13730	13800	13871	13942
	20	6	22414	22530	22645	22761	22877
	24	7	33202	33374	33545	33717	33888
	27	8	46671	46912	47153	47394	47634
	30	9	63058.4	63384	63709.7	64035.4	64361.1
	34	10	85166.1	85606	86045.8	86485.7	86925.5
	40	12	136690.1	137396.1	138102	138808	139514
	47	14	177028.1	177942.4	178856.7	179770.9	180685.2
	53	16	253217.3	256535.4	257853.5	259171.6	260489.7
	60	18	351212.6	353026.3	354840.2	356654.1	358468
	67	20	466237.9	468845.8	471053.8	473461.7	475869.7
	81	24	757800.6	761714.4	765628.2	769541.9	773455.7

Pounds of Steam Carried in Pipe for Drops per Lineal Foot of .3750 to .4750 Lb.

Velocity Ft. Per Sec.	Equiv. Lengths in Feet of Each Elbow	Pipe Size	Pounds Drop Per Lineal Foot				
			.3750	4000	.4250	.4500	.4750
	2	¾	36.5	37.7	38.9	40.0	41.0
	2	1	71.6	74.0	76.3	78.5	80.7
	3	¾	164.1	169.5	174.8	179.7	184.7
	4	1	330.7	342.5	352.4	362.3	373.8
	5	1¼	727	751.5	775	796.8	818.5
	5	1½	1130	1167	1204	1238	1272
	7	2	2290	2365	2440	2508	2576
	8	2½	3775	3990	4020	4128	4245
	10	3	6910	7135	7365	7570	7770
	12	3½	10325	10660	11000	11325	11620
	14	4	14583	15064	15543	15976	16415
	15	4½	19843	20497	21149	21739	22335
	17	5	26997	27888	28774	29576	30386
	20	6	58046	59508	60962	62279	63610
	24	7	65622	67787	69941	71892	73864
	27	8	92243	95286	98314	101056	103828
	30	9	124630.9	128742.5	132833.8	136538.3	140283.5
	34	10	168325.5	173878.6	179404.3	184407.6	189465.9
	40	12	270159.4	279072.1	287940.6	295970.8	304089.3
	47	14	349884.8	361427.7	372913.3	383313.3	393827.6
	53	16	504420.9	521061.9	537620.6	552614	567772.1
	60	18	694149.2	717049.4	739836.3	760469.1	781328.8
	67	20	921489.6	951889.9	982139.7	1009530	1037221.3
	81	24	1497744.8	1547156	1596322.5	1640841.5	1685849.7

CONVERSION FACTOR TABLES for Higher Pressures and Temperatures (not to exceed 750° F.) 125 to 1350 Lbs.

Factors for Conversion* of Low Pressure Steam Pipe Size Tables to Make Them Applicable to Higher Pressures and Temperatures

Pres. Lb. Gage	Saturated Steam	Superheat—F.								
		20	50	100	150	200	250	300	350	400
125	2.88	2.84	2.77	2.68	2.60	2.52	2.46	2.40	2.34	2.29
150	3.12	3.07	3.00	2.90	2.80	2.72	2.65	2.59	2.53	
175	3.33	3.28	3.20	3.09	3.00	2.91	2.84	2.77	2.71	
200	3.54	3.48	3.40	3.28	3.18	3.09	3.01	2.94	2.87	
225	3.72	3.67	3.58	3.45	3.34	3.25	3.17	3.09	3.03	
250	3.88	3.85	3.75	3.62	3.51	3.41	3.32	3.25		
275	4.08	4.02	3.92	3.78	3.67	3.56	3.47	3.38		
300	4.26	4.19	4.08	3.93	3.81	3.70	3.61	3.51		
350	4.58	4.50	4.38	4.22	4.09	3.97	3.87	3.77		
400	4.88	4.79	4.67	4.49	4.35	4.22	4.11	4.02		
500	5.43	5.32	5.18	4.99	4.82	4.68	4.56			
600	5.95	5.82	5.66	5.45	5.26	5.10	4.97			
900	7.29	7.12	6.91	6.60	6.37					
1200	8.54	8.29	8.00	7.60	7.30					
1350	9.15	8.84	8.50	8.06						

*At increased pressures and temperatures steam pipe will carry load as indicated in low pressure table times (x) conversion factor as above with drop per lineal ft. as indicated in low pressure table.

To simplify the use of above tables it is suggested that the steam loads on the job in question be corrected by dividing same by proper factor above. Then apply corrected load directly to low pressure table.

Three Tables for Finding the Sale Price

Table I.—For Finding the Sale Price by Division

(Courtesy of Chamber of Commerce) Re-Arranged to Suit Requirements of Plumbing Industry

O. H. E. on Annual Business	NET PER CENT PROFIT DESIRED																		
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
13%.....	.86	.85	.84	.83	.82	.81	.80	.79	.78	.77	.76	.75	.74	.73	.72	.71	.70	.69	.68	.67
14%.....	.85	.84	.83	.82	.81	.80	.79	.78	.77	.76	.75	.74	.73	.72	.71	.70	.69	.68	.67	.66
15%.....	.84	.83	.82	.81	.80	.79	.78	.77	.76	.75	.74	.73	.72	.71	.70	.69	.68	.67	.66	.65
16%.....	.83	.82	.81	.80	.79	.78	.77	.76	.75	.74	.73	.72	.71	.70	.69	.68	.67	.66	.65	.64
17%.....	.82	.81	.80	.79	.78	.77	.76	.75	.74	.73	.72	.71	.70	.69	.68	.67	.66	.65	.64	.63
18%.....	.81	.80	.79	.78	.77	.76	.75	.74	.73	.72	.71	.70	.69	.68	.67	.66	.65	.64	.63	.62
19%.....	.80	.79	.78	.77	.76	.75	.74	.73	.72	.71	.70	.69	.68	.67	.66	.65	.64	.63	.62	.61
20%.....	.79	.78	.77	.76	.75	.74	.73	.72	.71	.70	.69	.68	.67	.66	.65	.64	.63	.62	.61	.60
21%.....	.78	.77	.76	.75	.74	.73	.72	.71	.70	.69	.68	.67	.66	.65	.64	.63	.62	.61	.60	.59
22%.....	.77	.76	.75	.74	.73	.72	.71	.70	.69	.68	.67	.66	.65	.64	.63	.62	.61	.60	.59	.58
23%.....	.76	.75	.74	.73	.72	.71	.70	.69	.68	.67	.66	.65	.64	.63	.62	.61	.60	.59	.58	.57
24%.....	.75	.74	.73	.72	.71	.70	.69	.68	.67	.66	.65	.64	.63	.62	.61	.60	.59	.58	.57	.56
25%.....	.74	.73	.72	.71	.70	.69	.68	.67	.66	.65	.64	.63	.62	.61	.60	.59	.58	.57	.56	.55
26%.....	.73	.72	.71	.70	.69	.68	.67	.66	.65	.64	.63	.62	.61	.60	.59	.58	.57	.56	.55	.54
27%.....	.72	.71	.70	.69	.68	.67	.66	.65	.64	.63	.62	.61	.60	.59	.58	.57	.56	.55	.54	.53
28%.....	.71	.70	.69	.68	.67	.66	.65	.64	.63	.62	.61	.60	.59	.58	.57	.56	.55	.54	.53	.52
29%.....	.70	.69	.68	.67	.66	.65	.64	.63	.62	.61	.60	.59	.58	.57	.56	.55	.54	.53	.52	.51
30%.....	.69	.68	.67	.66	.65	.64	.63	.62	.61	.60	.59	.58	.57	.56	.55	.54	.53	.52	.51	.50

Divide the first cost by the percentage (hundredths) it represents.
EXAMPLE: If your overhead is 22%, and you wish to make 10% profit; take vertical column 10% to its intersection with horizontal column 22%, which gives you .68. Labor and Material cost being $60.
Divide $60 by .68 (sixty-eight hundredths)=$88.23.....Sale Price.

Table II.—For Finding Sale Price by Multiplication

(Chart issued by Trade Extension Bureau)

O. H. E. on Annual Business	NET PER CENT OF PROFIT DESIRED											
	5%	7½%	10%	12½%	15%	18%	20%	25%	30%	35%	40%	50%
30%.....			1.67	1.74	1.82	1.92	2.00	2.22	2.50	2.86	3.33	5.00
29½%.....			1.65	1.72	1.80	1.90	1.98	2.20	2.47	2.82	3.28	4.88
28½%.....			1.63	1.70	1.76	1.87	1.94	2.15	2.41	2.74	3.17	4.65
28%.....			1.61	1.68	1.75	1.85	1.92	2.13	2.40	2.70	3.13	4.55
27%.....			1.60	1.65	1.72	1.82	1.90	2.08	2.33	2.63	3.03	4.35
26½%.....			1.57	1.64	1.71	1.80	1.87	2.06	2.30	2.60	3.00	4.25
26%.....			1.56	1.63	1.70	1.80	1.85	2.04	2.27	2.56	2.94	4.17
25%.....			1.54	1.60	1.67	1.75	1.82	2.00	2.22	2.50	2.86	4.00
24%.....			1.52	1.57	1.64	1.72	1.80	1.96	2.17	2.44	2.80	3.85
23%.....			1.50	1.55	1.61	1.70	1.75	1.92	2.13	2.40	2.70	3.70
22%.....			1.47	1.53	1.60	1.67	1.72	1.90	2.08	2.33	2.63	3.57
21%.....			1.45	1.50	1.56	1.64	1.70	1.85	2.06	2.27	2.56	3.45
20%.....			1.43	1.48	1.54	1.61	1.67	1.82	2.00	2.22	2.50	3.33
19%.....			1.41	1.46	1.52	1.60	1.64	1.80	1.96	2.17	2.44	3.23
18%.....			1.40	1.44	1.50	1.56	1.61	1.75	1.92	2.13	2.40	3.13
17%.....		1.32	1.37	1.42	1.47	1.54	1.60	1.72	1.90	2.08	2.33	3.03
16%.....		1.30	1.35	1.40	1.45	1.52	1.56	1.70	1.85	2.06	2.27	2.94
15%.....		1.29	1.33	1.38	1.43	1.50	1.54	1.67	1.82	2.00	2.22	2.86
14%.....		1.27	1.32	1.36	1.41	1.47	1.52	1.64	1.80	1.96	2.17	2.80
13½%.....	1.23	1.27	1.31	1.35	1.40	1.46	1.50	1.63	1.77	1.94	2.15	2.74
13%.....	1.22	1.26	1.30	1.34	1.40	1.45	1.50	1.61	1.75	1.92	2.13	2.70
12½%.....	1.21	1.25	1.29	1.33	1.38	1.44	1.48	1.60	1.74	1.90	2.11	2.67
11½%.....	1.20	1.23	1.27	1.32	1.36	1.42	1.46	1.57	1.71	1.87	2.06	2.60

Multiply the first cost by the amount found in intersecting columns.
EXAMPLE: Labor and Material, $100. Overhead, 25%. Desired Profit, 10%.
Multiply $100 by 1.54=$154.00.

Table III.—For Finding Sale Price by Addition

(Courtesy of Retail Merchants Association) (Re-Arranged)

O. H. E. on Annual Business	NET PER CENT PROFIT DESIRED													
	2%	4%	5%	6%	8%	10%	12%	14%	15%	16%	18%	20%	25%	30%
10%.....	.1363	.1628	.1765	.1905	.2195	.25	.2821	.3158	.3334	.3514	.3888	.4286	.5385	.6667
12%.....	.1628	.1905	.2048	.2195	.25	.2821	.3158	.3514	.3973	.3888	.4286	.4706	.5873	.7241
14%.....	.1905	.2195	.2346	.25	.2821	.3158	.3514	.3888	.4084	.4286	.4706	.5152	.6393	.7857
15%.....	.2048	.2346	.25	.2659	.30	.3334	.3973	.4084	.4286	.45	.4925	.5385	.6667	.8182
16%.....	.2195	.25	.2659	.2821	.3158	.3514	.3888	.4286	.45	.4706	.5152	.5625	.6949	.8518
18%.....	.25	.2821	.30	.3158	.3514	.3888	.4286	.4706	.4925	.5152	.5625	.6111	.7544	.9231
20%.....	.2821	.3158	.3334	.3514	.3888	.4286	.4706	.5152	.5385	.5625	.6111	.6667	.8182	1.00
22%.....	.3158	.3514	.3698	.3888	.4286	.4706	.5152	.5625	.5873	.6111	.6667	.7241	.8868	1.0835
24%.....	.3514	.3888	.4084	.4286	.4706	.5152	.5625	.6111	.6393	.6667	.7241	.7857	.9608	1.1739
25%.....	.3973	.4084	.4286	.45	.4925	.5383	.5873	.6393	.6667	.6949	.7544	.8182	1.00	1.2222
26%.....	.3888	.4286	.45	.4706	.5152	.5625	.6111	.6667	.6949	.7241	.7857	.8518	1.0408	1.2727
28%.....	.4286	.4706	.4925	.5152	.5625	.6111	.6667	.7241	.7544	.7857	.8518	.9231	1.1276	1.3809
30%.....	.4706	.5152	.5385	.5625	.6111	.6667	.7241	.7857	.8182	.8518	.9231	1.00	1.2222	1.50

To use this table find the factor at intersection of Overhead and Profit, and add the percentage there indicated to the first cost.
EXAMPLE: Overhead, 24%. Profit sought, 6%. Cost of Labor and Material, $70.
ANSWER—Factor denoted at intersection of 24 and 6 is .4286.

Table of Trade Discounts

Prepared for Ready Reference in Estimating Plumbing and Heating Contracts

This table is especially valuable in figuring double discounts or discounts in three terms, for instance, to find a discount of three terms, such as 40-10-5 per cent. a look at the table shows that the net price on an article listed at $1 is .513, or 51 and 3–10 cents. If the article is listed at $10, the net price would then be $5.13. If the list price is $25, the net price would be .513 multiplied by 25, which equals 12.825, that is $12.82½.
A thorough examination of this table will prove it covers all the usual trade discounts in the plumbing and heating industry.

Discount	Net	Discount	Net	Discount	Net	Discount	Net	Discount	Net	Discount	Net	Discount	Net	Discount	Net	Discount	Net	Discount	Net
10-10	.81	30-2½-2½	.6654	35-7½	.6012	40-10-10	.486	47½-5-2½	.4863	52½-10	.4275	60-2½-7½	.3607	65-7½-5	.3076	72½	.275	77½-5-7½	.1977
20	.80	30-2½-5	.6484	35-7½-2½	.5862	40-10-10-5	.4617	47½-5-5	.4738	52½-10-2½	.4168	60-2½-10	.351	65-7½-7½	.2995	72½-2½	.2681	77½-5-10	.1924
20-5	.76	30-2½-7½	.6313	35-7½-5	.5712	42½	.575	47½-5-7½	.4614	52½-10-5	.4061	60-5	.38	65-7½-10	.2914	72½-2½-2½	.2614	77½-7½	.2081
20-5-5	.722	30-2½-10	.6142	35-7½-7½	.5562	42½-2½	.5606	47½-5-10	.4489	52½-10-7½	.3954	60-5-2½	.3705	65-10	.315	72½-2½-5	.2548	77½-7½-2½	.2029
20-7½	.74	30-5	.665	35-7½-10	.5411	42½-2½-2½	.5466	47½-7½	.4856	52½-10-10	.3847	60-5-5	.361	65-10-2½	.3071	72½-2½-7½	.248	77½-7½-5	.1977
20-10	.72	30-5-2½	.6484	35-10	.585	42½-2½-5	.5326	47½-7½-2½	.4735	55	.45	60-5-7½	.3515	65-10-5	.2992	72½-2½-10	.2413	77½-7½-7½	.1925
20-10-10	.648	30-5-5	.6317	35-10-2½	.5704	42½-2½-7½	.5186	47½-7½-5	.4614	55-2½	.4387	60-5-10	.342	65-10-7½	.2914	72½-5	.2612	77½-7½-10	.1873
25	.75	30-5-7½	.6151	35-10-5	.5557	42½-2½-10	.5046	47½-7½-7½	.4492	55-2½-2½	.4278	60-7½	.37	65-10-10	.2835	72½-5-2½	.2547	77½-10	.2025
25-2½	.7312	30-5-10	.5985	35-10-7½	.5411	42½-5	.5462	47½-7½-10	.4371	55-2½-5	.4168	60-7½-2½	.3607	65-10-10-5	.2693	72½-5-5	.2482	77½-10-2½	.1974
25-2½-2½	.713	30-7½	.6475	35-10-10	.5265	42½-5-2½	.5326	47½-10	.4725	55-2½-7½	.4058	60-7½-5	.3515	67½	.325	72½-5-7½	.2417	77½-10-5	.1924
25-2½-5	.6947	30-7½-2½	.6313	35-10-10-5	.5001	42½-5-5	.5189	47½-10-2½	.4607	55-2½-10	.3949	60-7½-7½	.3422	67½-2½	.3169	72½-5-10	.2351	77½-10-7½	.1873
25-2½-7½	.6764	30-7½-5	.6151	37½	.625	42½-5-7½	.5053	47½-10-5	.4489	55-5	.4275	60-7½-10	.333	67½-2½-2½	.309	72½-7½	.2544	77½-10-10	.1822
25-2½-10	.6581	30-7½-7½	.5991	37½-2½	.6094	42½-5-10	.4916	47½-10-7½	.4371	55-5-2½	.4168	60-10	.36	67½-2½-5	.301	72½-7½-2½	.248	80	.20
25-5	.7125	30-7½-10	.5827	37½-2½-2½	.5941	42½-7½	.5319	47½-10-10	.4252	55-5-5	.4061	60-10-2½	.351	67½-2½-7½	.2931	72½-7½-5	.2417	80-2½	.195
25-5-2½	.6947	30-10	.63	37½-2½-5	.5789	42½-7½-2½	.5186	50	.50	55-5-7½	.3954	60-10-5	.342	67½-2½-10	.2852	72½-7½-7½	.2353	80-2½-2½	.1901
25-5-5	.6769	30-10-2½	.6142	37½-2½-7½	.5637	42½-7½-5	.5053	50-2½	.4875	55-5-10	.3847	60-10-7½	.333	67½-5	.3087	72½-7½-10	.2289	80-2½-5	.1852
25-5-7½	.6591	30-10-5	.5985	37½-2½-10	.5484	42½-7½-7½	.492	50-2½-2½	.4753	55-7½	.4162	60-10-10	.324	67½-5-2½	.301	72½-10	.2475	80-2½-7½	.1804
25-5-10	.6412	30-10-7½	.5827	37½-5	.5937	42½-7½-10	.4787	50-2½-5	.4631	55-7½-2½	.4058	60-10-10-5	.3078	67½-5-5	.2933	72½-10-2½	.2413	80-2½-10	.1755
25-7½	.6937	30-10-10	.567	37½-5-2½	.5789	42½-10	.5175	50-2½-7½	.4609	55-7½-5	.3954	62½	.375	67½-5-7½	.2856	72½-10-5	.2351	80-5	.19
25-7½-2½	.6764	30-10-10-5	.5386	37½-5-5	.5641	42½-10-2½	.5046	50-2½-10	.4387	55-7½-7½	.385	62½-2½	.3656	67½-5-10	.2779	72½-10-7½	.2289	80-5-2½	.1852
25-7½-5	.6591	32½	.675	37½-5-7½	.5492	42½-10-5	.4916	50-5	.475	55-7½-10	.3746	62½-2½-2½	.3565	67½-7½	.3006	72½-10-10	.2227	80-5-5	.1805
25-7½-7½	.6417	32½-2½	.6581	37½-5-10	.5344	42½-10-7½	.4787	50-5-2½	.4631	55-10	.405	62½-2½-5	.3473	67½-7½-2½	.2931	75	.25	80-5-7½	.1757
25-7½-10	.6244	32½-2½-2½	.6417	37½-7½	.5781	42½-10-10	.4657	50-5-5	.4512	55-10-2½	.3949	62½-2½-7½	.3382	67½-7½-5	.2856	75-2½	.2437	80-5-10	.171
25-10	.675	32½-2½-5	.6252	37½-7½-2½	.5637	45	.55	50-5-7½	.4394	55-10-5	.3847	62½-2½-10	.3291	67½-7½-7½	.2781	75-2½-2½	.2376	80-7½	.185
25-10-2½	.6581	32½-2½-7½	.6088	37½-7½-5	.5492	45-2½	.5362	50-5-10	.4275	55-10-7½	.3746	62½-5	.3562	67½-7½-10	.2706	75-2½-5	.2316	80-7½-2½	.1804
25-10-5	.6412	32½-2½-10	.5923	37½-7½-7½	.5348	45-2½-2½	.5228	50-7½	.4625	55-10-10	.3646	62½-5-2½	.3473	67½-10	.2925	75-2½-7½	.2255	80-7½-5	.1757
25-10-7½	.6244	32½-5	.6412	37½-7½-10	.5203	45-2½-5	.5094	50-7½-2½	.4509	55-10-10-5	.3462	62½-5-5	.3384	67½-10-2½	.2852	75-2½-10	.2194	80-7½-7½	.1711
25-10-10	.6075	32½-5-2½	.6252	37½-10	.5625	45-2½-7½	.496	50-7½-5	.4394	57½	.425	62½-5-7½	.3295	67½-10-5	.2779	75-5	.2375	80-7½-10	.1665
25-10-10-5	.5771	32½-5-5	.6092	37½-10-2½	.5484	45-2½-10	.4826	50-7½-7½	.4278	57½-2½	.4144	62½-5-10	.3206	67½-10-7½	.2706	75-5-2½	.2316	80-10	.18
27½	.725	32½-5-7½	.5932	37½-10-5	.5344	45-5	.5225	50-7½-10	.4162	57½-2½-2½	.404	62½-7½	.3469	67½-10-10	.2632	75-5-5	.2256	80-10-2½	.1755
27½-2½	.7069	32½-5-10	.5771	37½-10-7½	.5203	45-5-2½	.5094	50-10	.45	57½-2½-5	.3937	62½-7½-2½	.3382	70	.30	75-5-7½	.2197	80-10-5	.171
27½-2½-2½	.6892	32½-7½	.6244	37½-10-10	.5062	45-5-5	.4964	50-10-2½	.4387	57½-2½-7½	.3833	62½-7½-5	.3295	70-2½	.2925	75-5-10	.2138	80-10-7½	.1665
27½-2½-5	.6715	32½-7½-2½	.6088	40	.60	45-5-7½	.4833	50-10-5	.4275	57½-2½-10	.3729	62½-7½-7½	.3209	70-2½-2½	.2852	75-7½	.2312	80-10-10	.162
27½-2½-7½	.6539	32½-7½-5	.5932	40-2½	.585	45-5-10	.4702	50-10-7½	.4162	57½-5	.4037	62½-7½-10	.3122	70-2½-5	.2779	75-7½-2½	.2255	80-10-10-5	.1539
27½-2½-10	.6362	32½-7½-7½	.5775	40-2½-2½	.5704	45-7½	.5087	50-10-10	.405	57½-5-2½	.3937	62½-10	.3375	70-2½-7½	.2706	75-7½-5	.2197	82½	.175
27½-5	.6887	32½-7½-10	.5619	40-2½-5	.5557	45-7½-2½	.496	50-10-10-5	.3847	57½-5-5	.3836	62½-10-2½	.3291	70-2½-10	.2632	75-7½-7½	.2139	82½-2½	.1706
27½-5-2½	.6715	32½-10	.6079	40-2½-7½	.5411	45-7½-5	.4833	52½	.475	57½-5-7½	.3735	62½-10-5	.3206	70-5	.285	75-7½-10	.2081	82½-2½-2½	.1663
27½-5-5½	.6543	32½-10-2½	.5923	40-2½-10	.5265	45-7½-7½	.4706	52½-2½	.4631	57½-5-10	.3634	62½-10-7½	.3122	70-5-2½	.2779	75-10	.225	82½-2½-5	.1621
27½-5-7½	.6371	32½-10-5	.5771	40-5	.57	45-7½-10	.4579	52½-2½-2½	.4515	57½-7½	.3931	62½-10-10	.3037	70-5-5	.2707	75-10-2½	.2194	82½-2½-7½	.1578
27½-5-10	.6199	32½-10-7½	.5619	40-5-2½	.5557	45-10	.495	52½-2½-5	.44	57½-7½-2½	.3833	65	.35	70-5-7½	.2636	75-10-5	.2137	82½-2½-10	.1535
27½-7½	.6706	32½-10-10	.5467	40-5-5	.5415	45-10-2½	.4826	52½-2½-7½	.4284	57½-7½-5	.3735	65-2½	.3412	70-5-10	.2565	75-10-7½	.2081	82½-5	.1662
27½-7½-2½	.6539	35	.65	40-5-7½	.5272	45-10-5	.4702	52½-2½-10	.4168	57½-7½-7½	.3636	65-2½-2½	.3327	70-7½	.2775	75-10-10	.2025	82½-5-2½	.1621
27½-7½-5	.6371	35-2½	.6337	40-5-10	.513	45-10-7½	.4579	52½-5	.4512	57½-7½-10	.3538	65-2½-5	.3242	70-7½-2½	.2706	75-10-10-5	.1923	82½-5-5	.1579
27½-7½-7½	.6203	35-2½-2½	.6179	40-7½	.555	45-10-10	.4455	52½-5-2½	.44	57½-10	.3825	65-2½-7½	.3157	70-7½-5	.2636	77½	.225	82½-5-7½	.1538
27½-7½-10	.6036	35-2½-5	.6021	40-7½-2½	.5411	45-10-10-5	.4232	52½-5-5	.4287	57½-10-2½	.3729	65-2½-10	.3071	70-7½-7½	.2567	77½-2½	.2194	82½-5-10	.1496
27½-10	.6525	35-2½-7½	.5862	40-7½-5	.5272	47½	.525	52½-5-7½	.4174	57½-10-5	.3634	65-5	.3325	70-7½-10	.2497	77½-2½-2½	.2139	82½-7½	.1619
27½-10-2½	.6362	35-2½-10	.5704	40-7½-7½	.5134	47½-2½	.5119	52½-5-10	.4061	57½-10-7½	.3538	65-5-2½	.3242	70-10	.27	77½-2½-5	.2084	82½-7½-5	.1538
27½-10-5	.6199	35-5	.6175	40-7½-10	.4995	47½-2½-2½	.4991	52½-7½	.4394	57½-10-10	.3442	65-5-5	.3159	70-10-2½	.2632	77½-2½-7½	.2029	82½-7½-10	.1457
27½-10-7½	.6035	35-5-2½	.6021	40-10	.54	47½-2½-5	.4863	52½-7½-2½	.4284	60	.40	65-5-7½	.3076	70-10-5	.2565	77½-2½-10	.1974	82½-10	.1575
27½-10-10	.5872	35-5-5	.5866	40-10-2½	.5265	47½-2½-7½	.4735	52½-7½-5	.4174	60-2½	.39	65-5-10	.2992	70-10-7½	.2497	77½-5	.2137	82½-10-2½	.1535
30	.70	35-5-7½	.5712	40-10-5	.513	47½-2½-10	.4607	52½-7½-7½	.4064	60-2½-2½	.3802	65-7½	.3237	70-10-10	.243	77½-5-2½	.2084	82½-10-5	.1496
30-2½	.6825	35-5-10	.5557	40-10-7½	.4995	47½-5	.4987	52½-7½-10	.3954	60-2½-5	.3705	65-7½-2½	.3157	70-10-10-5	.2308	77½-5-5	.2031	82½-10-7½	.1457
																		82½-10-10	.1417
																		85	.15

Societies and Associations

ARCHITECTURE

American Institute of Architects
1741 New York Ave., N. W., Washington, D. C.

BOILER

American Boiler Manufacturers Association
709 Rockefeller Building, Cleveland, Ohio

The Institute of Boiler and Radiator Manufacturers
Geneva, New York

BUILDING

American Construction Council
28 W. 44th St., New York City

Better Homes in America
1653 Pennsylvania Ave., Washington, D. C.

Home Modernizing Bureau of the National Building Industries, Inc.
228 N. La Salle Street, Chicago, Ill.

The President's Conference on Home Building and Home Ownership
Commerce Building, Washington, D. C.

Philadelphia Federation of the Construction Industry
1201 Architects Building, 17th and Sansom Sts.,
Philadelphia, Pa.

BRASS

Copper and Brass Research Association
25 Broadway, New York City

COAL

Anthracite Institute
90 West Street, New York City

National Coal Association
307 N. Michigan Avenue, Chicago, Ill.

Committee of Ten—Coal and Heating Industries
307 N. Michigan Avenue, Chicago, Ill.

COMPRESSED AIR

Compressed Air Society
90 West Street, New York City

COPPER (See Brass)

ENGINEERING

American Society of Mechanical Engineers
29 West 39th Street, New York City

The Engineering Foundation
29 West 39th Street, New York City

Western Society of Engineers
205 W. Wacker Drive, Chicago, Ill.

FAN

National Association of Fan Manufacturers
308 W. Washington Street, Chicago, Ill.

FIRE PROTECTION

National Fire Protection Association
60 Batterymarch Street, Boston, Mass.

GAS

American Gas Association
420 Lexington Avenue, New York City

Compressed Gas Manufacturers Association
110 W. 40th Street, New York City

Gas Products Association
240 E. Ontario Street, Chicago, Ill.

HEATING (also see Oil Burner and Gas)

American Society of Heating & Ventilating Engineers
51 Madison Avenue, New York City

Heating & Piping Contractors National Association
50 Union Square, East, New York City

Industrial Unit Heater Association
308 W. Washington Street, Chicago, Ill.

National District Heating Association
603 Broadway, Greenville, Ohio

National Warm Air Heating Association
3440 A. I. U. Building, Columbus, Ohio

HYDRAULIC

The Hydraulic Society
90 West Street, New York City

INDUSTRIAL

National Industrial Conference Board
247 Park Avenue, New York City

LEAD

Lead Industries Association
420 Lexington Avenue, New York City

LIEN LAW

Lien Law Revision and Enforcement Association
5601 Grand Central Terminal, New York City

Societies and Associations

METAL

National Metal Trades Association
122 S. Michigan Avenue, Chicago, Ill.

OIL BURNER (also see Heating)

American Oil Burner Association
342 Madison Avenue, New York City

Oil Heating Institute
342 Madison Avenue, New York City

PIPE AND SUPPLIES

National Pipe and Supplies Association
914 Clark Building, Pittsburgh, Pa.

Cast Iron Pipe Research Association
122 S. Michigan Avenue, Chicago, Ill.

PLUMBING

National Association of Master Plumbers
Shoreham Bldg., 15th and H Streets, Washington, D. C.

National Association of Plumbing Secretaries
609 The Arcade, Cleveland, Ohio

Plumbing and Heating Industries Bureau
Pure Oil Building, 35 East Wacker Drive, Chicago, Ill.

POWER

National Association of Power Engineers
1140 Lake Street, Oak Park, Ill.

PUBLIC BATHS

The American Association for Promoting Hygiene and Public Baths
P. O. Box 307, Gary, Indiana

PUBLIC HEALTH

American Public Health Association
450 Seventh Avenue, New York City

RADIATOR (see Boiler)

REFRIGERATION

American Society of Refrigerating Engineers
37 West 39th Street, New York City

National Association of Practical Refrigerating Engineers
435 N. Waller Avenue, Chicago, Ill.

SALESMEN

National Association of Plumbing & Heating Salesmen
923 Real Estate Trust Bldg., Philadelphia, Pa.

SANITATION

American Society of Sanitary Engineering
1308 Freemont Street, McKeesport, Pa.

SEWAGE

Iowa Conference on Sewage Treatment
Iowa State College of Agricultural and Mechanic Arts, Ames, Iowa.

SLATE

National Slate Association
757 Drexel Building, Philadelphia, Pa.

SOIL PIPE

Soil Pipe Association
424 Brown-Marx Building, Birmingham, Ala.

SPECIFICATIONS AND TESTING

American Society for Testing Materials
1315 Spruce Street, Philadelphia, Pa.

STANDARDS

American Standards Association
29 W. 39th Street, New York City

STOKERS

Midwest Stoker Association
625 Monadnock Block, Chicago, Ill.

SUPPLY ASSOCIATIONS

Central Supply Association
221 N. La Salle, Street, Chicago, Ill.

Eastern Supply Association
261 Broadway, New York City

VALVES AND FITTINGS

Manufacturers Standardization Society of the Valve and Fittings Industry
103 Park Avenue, New York City

VENTILATION (See Heating)

WELDING

American Welding Society
608 S. Dearborn Street, Chicago, Ill.

American Welding Society
Engineering Societies Bldg., 29 W. 39th St., New York City

International Acetylene Association
35 East 42nd Street, New York City